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VISION AND VALIDATE – SITE BASED SUSTAINABLE TRANSPORT VISION

Stratford-on-Avon District Council
Warwickshire County Council
Homes England

Long Marston Airfield Garden Village

January 2023

The Vision – Part 1

Report control

Document:	Vision and validate – site based sustainable transport vision
Project:	Long Marston Airfield Garden Village
Client:	Stratford-on-Avon District Council, Warwickshire County Council, Homes England
Job number:	226567
File origin:	X:\Projects\220000\226567 - Long Marston Airfield Garden Village\Technical\ISSUED\226567-LMA Vision Document-Second Draft 1.7-ISSUED

Document checking

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Issue	Date	Status	Checked for issue
1	24.05.2022	Draft	PC
2	09.09.2022	Draft	PC
3	11.01.2023	Final	PC

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1 Executive Summary

1.1 This Vision for Long Marston Airfield Garden Village (LMA) sets out an ambitious package of interconnected placemaking and mobility components to foster a thriving local community which is centred around accessibility, liveability and minimising carbon emissions.

1.2 It comprises a report which explores a wide range of measures for consideration by key decision makers which can help maximise local amenities, education and employment, encourage local living and offer new mobility services to residents and visitors. Many such measures are already being rolled out in strategic developments across the UK and abroad. But the Vision's innovation is to integrate them together to achieve significant co-benefits tailored to LMA.

1.3 It takes into account long term trends seen in changing mobility behaviour as well as those precipitated by the recent pandemic. It challenges traditional assumptions on travel choice by employing the Vision and Validate approach to transport planning. Namely that a Vision-led approach can achieve the desired mobility behaviour by providing modern and convenient alternatives, design streets that encourage active travel and provide the services which promote local living and tackle isolation. This in turn can mitigate the impact on local highway infrastructure from the delivery of new residential developments.

1.4 This report presents the background to LMA site, followed by the multi-sector stakeholder engagement process which has fed into the Vision itself.

1.5 The Placemaking chapter comprises an integrated package of accessibility components that enable local living with a thriving community and economy. It includes elements such as: a community hub offering recreational and sports facilities; 15 minute neighbourhood planning principles; new ways to bring forward schools; and local shops and eateries. In this way a large proportion of local trips can be “internalised” within the site, minimising vehicle movements and maximising active travel and healthy streets.

1.6 The Mobility chapter comprises a suite of modern low carbon options for residents, workers, and visitors that will make sustainable mobility behaviour the natural first choice for the majority of journey types. This means unlocking the potential of the Stratford Greenway and introducing active travel corridors and mobility hubs to make walking, cycling, eScooters and eBikes the preferred way to get around LMA and to connect to onward destinations. We would see a thriving EV car club community ensuring a cheap and convenient alternative to multiple car ownership, and making use of new technologies to provide an attractive Demand Responsive Transport service.

1.7 The Vision is then summarised in the final chapter of the report along with a visual representation.

1.8 A second report ‘Developing the Detail of the Sustainable Transport Vision’ subsequently presents the implications for trip generation from the various placemaking and mobility components. This will allow decision makers to assess the Vision’s potential to internalise trips, shift journeys to shared and electric modes, and mitigate impact on the highway network.

2 Introduction

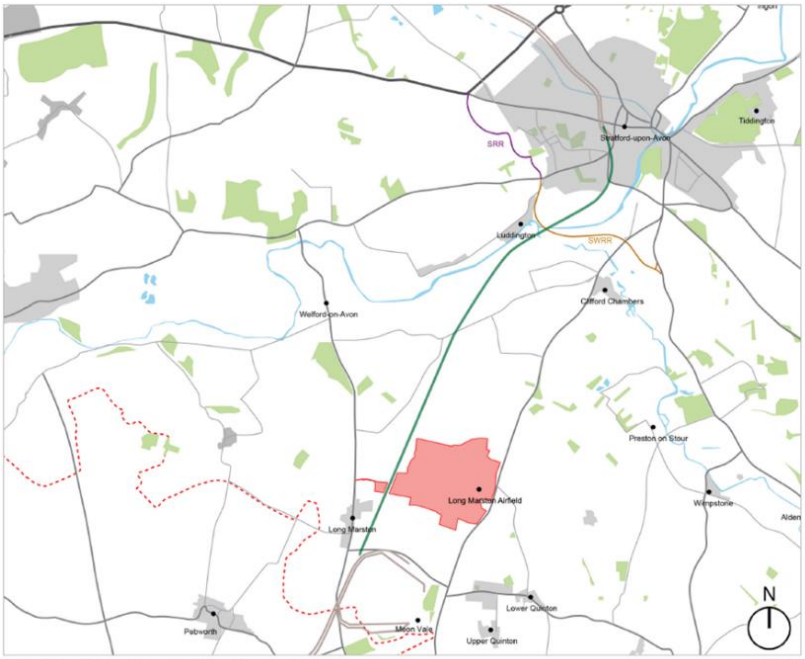
Background to the site

2.1 Long Marston Airfield Garden Village (LMA) relates to the provision of a new settlement for 3,500 homes, 13ha of employment land, a local centre, two primary schools and a secondary school and open space. In January 2017 Long Marston Airfield was awarded Garden Village status.

2.2 It is one of two new settlements delivering growth across the District. Given the scale of LMA, it was envisaged that the site would deliver 2,100 homes by 2031 and continue to deliver beyond the plan period.

2.3 The location of Long Marston Airfield Garden Village (LMA) is shown in Figure 2.1.

Figure 2.1 - Long Marston Airfield including the South Western Relief Road and Shottery Relief Road



2.4 Highway modelling undertaken to support the preparation of the Core Strategy demonstrated that a relief road would be needed to the south-west of Stratford-upon-Avon town (referred to as the SWRR) in order to accommodate forecasted additional travel demands.

2.5 The route of the identified SWRR is shown along with the connecting route of the West of Shottery Relief Road (WSRR) currently under construction between the B439 Evesham Road and A46 at Wildmoor. The Core Strategy and subsequent modelling has used pre Covid-19 assumptions and concluded that the highway network has minimal capacity to absorb any increases in traffic volume and that there is very little scope to increase highway capacity on the current network.

2.6 Warwickshire County Council's current Local Transport Plan runs to 2026, and a replacement LTP4 is currently being prepared and is expected to be published in 2022.

Timeline of key milestones

— LMA allocated in the adopted Core Strategy	July 2016
— Awarded Garden Village Status	January 2017
— Planning approval for Phase 1 (400 homes)	February 2017
— Framework Masterplan SPD	February 2018
— Housing Infrastructure Funding awarded to help deliver Phase 1	February 2018
— Planning applications submitted for Phase 2 (3,100 homes) and SWRR	Pending
— South Western Relief Road Funding Bid unsuccessful	2020
— Study commissioned to explore sustainable travel options	2022

Study objectives

2.7 Stratford-on-Avon District Council (as the Local Planning Authority), Warwickshire County Council (as the Local Highway Authority) and Homes England (as the Government's housing delivery agency and Garden Village programme lead) have commissioned a high-level study to undertake an analysis and assessment of a range of placemaking and mobility options (including minimising the need to travel) to support the delivery of Long Marston Airfield Garden Village (LMA).

2.8 The work is undertaken in the context of:

- Previous and ongoing assessments which have identified that highway capacity is a significant limiting factor on growth to the south of Stratford-upon-Avon
- Declarations of climate emergencies by both councils
- The UK's commitment to achieving 'Net Zero' by 2050
- Changes in travel patterns over the long term arising from the pandemic
- The significant lack of identified public funding to deliver the current proposed transport solution, namely, the South Western Relief Road (SWRR) to Stratford-upon-Avon town.
- The context of the emerging South Warwickshire Local Plan which is expected to set out a new strategy for development and growth to 2050.

2.9 The findings of the study will be used to inform plan-making and decisions regarding the future delivery of the Garden Village. Importantly, the study will need to conclude, in principle, whether place making and sustainable travel approaches can provide a viable alternative to investment in large-scale highway / off-site mass transit interventions.

2.10 The first part of the study is to define the Vision for the Long Marston Garden Village site itself, which comprises placemaking and mobility elements, with an emphasis on making it a self-contained

sustainably operating new community. This follows the Vision and Validate approach to transport planning. This work sets the scene for detailed evaluation and analysis in Part 2.

2.11 This Vision document has been developed in close consultation with key cross-sector stakeholders to address challenges and unlock opportunities from the design, whilst maximising levels of ambition in terms of new placemaking concepts and mobility services.

2.12 The Vision is therefore split into two sections: Placemaking and Mobility.

2.13 Placemaking

- This includes all the elements which enable journeys to be 'internalised' within the site, or substituted entirely, thanks to local provision of amenities connected by attractive walking and cycling routes.

2.14 Mobility

- This includes the provision of shared, on-demand and low carbon mobility services to minimise private vehicle modal share, thanks to convenient and cost effective connections with surroundings towns, communities and employment centres.

2.15 Both chapters set high levels of ambition whilst reflecting the discussions with stakeholders and taking into account good practices seen in the UK and across Europe. If implemented these interventions could lead to changes in trip generation and challenge the way congestion is dealt with in traffic modelling and in appraising acceptability of transport solutions.

Stakeholder Engagement

Overview

2.16 The core principle of formulating the Vision was to engage with a range of key stakeholders in the area, record their opinions, then incorporate these into the overall design process, seeking to gain buy-in.

2.17 The first step was to draft a long list of stakeholders with the input of the study's management team: Stratford-on-Avon District Council, Warwickshire County Council and Homes England.

2.18 Stakeholders were categorised according to perceived influence in the study objectives as well as their interest in placemaking and/or mobility elements of the vision.

2.19 Stakeholders were then invited to a series of workshops and to respond surveys to gather their inputs, representing different sectors. The main sector grouping are as follows:

- Local authority;
- Community group;
- Transport authority / operator;

— Property developer; and

— Sustainable transport organisation

2.20 In total 34 stakeholder organisations were invited to participate in the workshops, as shown below.

Table 2.1 - Invited members of the Stakeholder Engagement Group

Invited members of the Stakeholder Engagement Group	
Stratford District Council	Network Rail
Warwickshire County Council	Quinton Parish Council
Homes England	Network Rail
Cala Homes	Transport for West Midlands
Mode Transport	Active Travel England
Landowner	Cotswold Line Promotion Group
Stratford Residents Action Group SRAG	Shakespeare Line Promotion
Group	
CoMoUK	Great Western Railway
Design Council	Stratford Climate Action
West Midlands Connect	Sustrans
National Highways	Stratford Greenway Group
Stratford Rail Transport Group	Long Marston Rail Innovation
Centre Accessible Stratford	Wychavon District Council
Stratford-upon-Avon Town Transport Group (TTG)	Mode Transport
Stagecoach	Johnsons Coaches
Chiltern Railways	Stratforward
Stratford Business Forum	Great Western Railway

2.21 A stakeholder engagement programme was formulated and delivered including workshops, surveys, bilateral calls and review of key documents and strategies. A briefing note was circulated to stakeholders at the outset to set out the terms of reference for the groups and secure their participation.

2.22 Three multi-stakeholder workshops were held to define the vision for a self-contained sustainably operating new community. This was followed by a fourth workshop where the findings were presented to the management team.

First workshop – Rationale for Vision and Validate and Introduction to Long Marston Garden Village

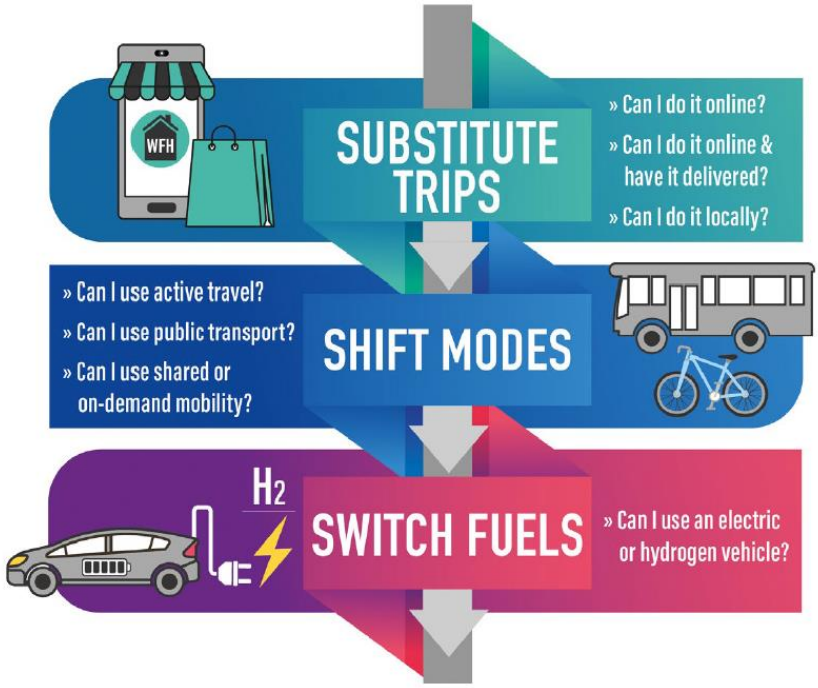
2.23 All members of the Stakeholder Engagement Group were invited to the first workshop so that everyone was briefed on the study objectives.

2.24 The workshop also set out the definition and rationale for the Vision and Validate approach to transport planning.

2.25 Case studies from the UK and abroad were presented to illustrate how Vision and Validate approaches can support sustainable community development in a rural district.

2.26 An overview was provided of how to design communities using Vectos' SAM Framework (Sustainable Accessibility and Mobility) in the way it relates to new settlements, as showing in Figure 2.2.

Figure 2.2 - SAM Framework (Sustainable Accessibility and Mobility) for community planning



2.27 The SAM Framework advocates designing new and extended communities in the most sustainable way whilst reducing the need to travel, supporting uptake in shared and active travel whilst advancing low emission vehicles; as follows:

- Substitute Trips (minimise trips): Minimise travel demand by applying 15-minute neighbourhood principles to site design. Maximise opportunities for living local with safe streets, amenities, superfast broadband, co-working spaces and micro-consolidation of freight;

- Shift Modes (minimise least sustainable modes): Make shared mobility the natural choice over private car with Demand Responsive Transport (DRT) and public transport enabled by Mobility as a Service applications, integrated mobility hubs offering communal bikes, e-bikes, cargo bikes and EV car clubs; and

- Switch Fuels (minimise most polluting fuels): Future-proofed charging infrastructure to enable growth in electric vehicles and hydrogen fuel cell vehicles.

Second workshop – Formulating the Vision: Placemaking interventions

2.28 This event brought together stakeholders to identify the opportunities and barriers for the LMA site to embrace an ambitious set of placemaking interventions which centre on the principle of local living. These included:

- Trip internalisation
- Local employment and office space
- Home working
- Primary and secondary schools
- Shopping (physical & online)
- Leisure facilities
- Local centre - Community Hub
- Internal site accessibility

2.29 The results from the stakeholder survey were also presented which showed the features which the participants thought were the most important for a desirable place to live.

Third workshop – Formulating the Vision: Mobility interventions

2.30 This event brought together stakeholders to identify the opportunities and barriers for the LMA site to embrace an ambitious set of mobility interventions which maximise site accessibility to and from key destinations. These included:

- Walking and Cycling routes
- Shared Mobility (EV car club, bike, eBike, eScooter)
- Mobility hubs
- Public transport
- Mobility as a Service
- Automated shuttles

2.31 The results from the stakeholder survey were also presented which showed the mobility services rated the most important for an ambitious garden village like LMA.

Fourth workshop – Crystallising the Vision

2.32 The findings from the workshops on Placemaking and Mobility interventions were presented to the management team to gather final input before the formulation of the draft Vision document.

3 Vision Placemaking

3.1 The first section of the Vision centres on the Placemaking interventions deemed to be the most desirable and integrates them into an ambitious package promoting local living.

Desirability of Place Survey Results

3.2 The first part of designing a Vision is to consider the components of a modern, desirable and aspirational place to live which will attract individuals and families alike. We need to consider the characteristics which will continue to prove desirable in the years to come. This means taking into account current trends and predictions for the future.

3.3 This is what elected mayors have been doing for many years in towns and cities across the UK and Europe. These visions often include the components of liveability, air quality, bio-diversity, green spaces, sustainable modal shares, accessibility and health. These are consulted on and generally include the citizens' preferences. They then embark on street and community designs in a way that realises these objectives. This is the Vision and Validate approach which culminates in the Local Transport Plan (or Sustainable Urban Mobility Plan). This approach is transferable to community level planning.

3.4 The Stakeholder Engagement Group completed a survey which gathered input on the elements which constitute a desirable place to live. The results are shown below.

Table 3.1 - Desirability Survey: High and medium level

Desirability component	Level of importance
Safe walking and cycling routes	95%
Abundance of green spaces and biodiversity	93%
Clean air	93%
Local schools	93%
Community centre / event space	90%
Tranquillity. Little noise	88%
Local shops	88%
Local cafes	88%
20 mph speed limits	86%
Low Traffic Neighbourhoods	86%
Most streets designed for people not vehicles	86%
Places to socialise	86%
Accessible street design for all	83%
Playgrounds	83%
Leisure and sport facilities	83%
Local employment	79%
Convenient online deliveries	79%
Places to stop and rest	76%
Local co-working spaces	71%

3.5 The results show that desirable characteristics are synonymous with local living and hence trip internalisation.

3.6 Some of the highest ranked components centred on the environmental conditions and the outdoors such as: Safe walking and cycling routes, green spaces, biodiversity, clean air and tranquillity.

3.7 Equally highly-ranked features can be categorised as local amenities: Local schools, community centre, local shops, cafés, places to socialise, playgrounds and leisure facilities.

3.8 Medium ranked elements consider the street design: 20 mph speed limits, Low Traffic Neighbourhoods, streets designed for people and accessible streets for all.

3.9 Respondents also suggested additional components:

- Digital connectivity – fast broadband
- 15 min neighbourhood
- Local enterprise space / weekend market
- Rainwater capture for domestic and business
- Local energy production (solar / wind)
- Well lit, safe spaces
- Local pub and takeaways
- High quality building design
- Local services brought into the community e.g. drop in medical clinics

3.10 As shown below, the components receiving the lowest ratings of desirability were related to the priority allocation of space and speed to cars.

Table 3.2 - Desirability Survey: Low level

Desirability component	Level of importance
Generous car parking	62%
Most streets designed for vehicles not people	55%
30 mph speed limits	55%
Priority access by car	48%

3.11 The results from the survey were reflective of similar exercises performed by decision makers and city mayors across the UK and Europe in recent years. They show that the components of a community which are considered the most desirable, are synonymous with offering priority to places and spaces, rather than fast movement.

Vision Components – Placemaking

3.12 The LMA Placemaking Vision offers residents the freedom to fulfil the majority of daily activities within their community either physically or remotely. This will be made possible through an integrated

package of accessibility measures that enable local living with a thriving community and economy. The result will be a resilient community designed to support net zero carbon objectives.

Introduction to Trip Internalisation & Local Living

3.13 The main objective of the placemaking components is to generate a vibrant community and enable local living.

3.14 In strategic developments across England and Wales it is a common objective to assess what proportion of daily trips can be "internalised" within the new or extended community. Trip internalisation can be maximised by rolling out 15 minute neighbourhood principles in masterplanning and can result in more resilient, lower carbon and thriving communities supporting local business.

Figure 3.1 - The 15 minute neighbourhood offers most amenities within a short walk or cycle

3.15 Sustrans supports such a concept (they refer to 20 minute neighbourhoods) declaring that "research shows that people are generally happy to walk for 20 minutes to get to and from the places they need to go. 80% of journeys under a mile are made on foot, which usually equates to around a 20-minute walk. In such a neighbourhood, the 20-minute walking trip could be cycled in around 7 minutes.[1]".

[1] https://www.sustrans.org.uk/our-blog/get-active/2020/in-your-community/what-is-a-20-minute-neighbourhood

The Town and Country Planning Association is a further supporter, having issued a comprehensive guidance document[2]. The Department for Transport also includes provision for this approach in its active travel local authority toolkit 2022[3].

3.16 Local living already happens in established towns, where residents travel locally to school, to the shops, go for a walk, as well as for work. There are usually a good range of facilities including schools, shops, leisure services and healthcare. For an exemplar garden village the convenient features of established towns must be incorporated with accessibility and mobility features are improved upon.

3.17 In the National Travel Survey there are four main journey purpose categories. A vision-led approach must therefore address these by offering alternatives on site to prevent the need to travel as much as possible (whilst realising co-benefits):

- Local employment + co-working;
- Education + Escort Education[4];
- Shopping (physical & online) and services; and
- Leisure.

3.18 A fifth category which acts as an enabler for these main four is Internal Mobility. This makes the internal destinations accessible in the most sustainable ways.

3.19 Following this approach therefore we can derive an internalisation factor for each category which will help to assess trip generation and capacity needs.

Local employment, office space, homeworking and co-working

3.20 LMA will be home to a range of local employment opportunities.

Designated office space for long term tenants

3.21 This will be made possible with the provision of designated office space for the premises of local businesses. The offices will be located in close proximity to the co-working hub and could even share

[2] https://tcpa.org.uk/resources/the-20-minute-neighbourhood/

[3] https://www.gov.uk/government/publications/active-travel-local-authority-toolkit/active-travel-local-authority-toolkit

[4] Escorts supervise pupils with Special Educational Needs whilst they are being transported from home to school and vice versa

the same building and facilities hosting short and long term users. They will offer a range of office sizes to attract different types of business and allow them to grow in the same location.

3.22 Such facilities will benefit from early advertisement, but also a hands on approach to identify potential tenants. This can best be achieved by appointing a local business champion with sound local knowledge. The champion might be a local authority representative, an elected member, local resident volunteer, member of a local community group or chamber of commerce.

3.23 The Long Marston Rail Innovation Centre (formerly Quinton Rail Technology Centre) is also locally situated. This is a strategic rail business hub and testing centre of excellence. In 2021 the site was taken over by Porterbrook on a 15 year lease, who have already invested £3 million to modernise the facilities. Under its former owners it was home to rail research and innovative businesses that developed electric and hydrogen powered train technology. Porterbrook states that it is committed to being a responsible neighbour and contributor to the local economy and to protecting Long Marston wildlife and natural habitats. The Innovation Centre offers local high tech employment and may be a suitable location for a connecting mobility hub with LMA to facilitate shared and zero carbon access. The Centre may also be an interested tenant in the designated office space in LMA as it grows in size. These elements offer trip internalisation.

3.24 A self-sustaining community with work trips anchored within the local community offers additional benefits to just reducing vehicle miles travelled. For example, this would also mean increased spending in the local shops, café and pub.

Other local employment

3.25 Schools offer direct employment opportunities for local residents. Whilst this may not always include teachers, this does often include teaching assistants, secretaries and canteen staff. With additional services of pre-school and after-school clubs as well as day care, the proposed schools for LMA will offer many local jobs within a short walk or cycle, hence internalising trips.

Case study

3.26 Teaching Assistants account for around a quarter of the overall state-funded school workforce in England and so offer notable employment opportunities.

3.27 The local supermarket, pub, co-working hub and mobility hub will also offer employment opportunities for local residents. The repair café will likely offer volunteering opportunities too.

Home working

3.28 LMA will offer high quality digital infrastructure and the space needed to make home working a natural choice for those who are permitted and inclined to do so.

3.29 Working from home will be highest in areas which offer reliably fast broadband and the physical space at home to set up a workstation.

3.30 This will reduce peak car at rush hour, and additional rates of internalisation will be achieved through the presence of the co-working hub.

Case study

3.31 Patterns observed post COVID indicate a shift to working from home of between 25-40% of the entire workforce, depending on the sectors in which people work. This compares with pre COVID levels of an average of 13%.

3.32 Many workplaces now often more flexible policies which allow working from home all of the time, for certain days in the week, or that only require being in the office between the core hours of 1000-1600. This means peak hour traffic can also be mitigated by enabling home working at the start or end of the day.

Co-working Hub

3.33 LMA will have a co-working hub conveniently located offering residents access to hotdesks, wifi, and other office equipment.

3.34 Co-working spaces allows short-term leases to individuals, freelancers, small and medium enterprises, and other professionals. In contrast to traditional offices, flexible offices provide equipped and serviced office premises and meeting rooms, without long-term rent commitment

3.35 This will help maximise the number of people who are able to work remotely, especially those who need more space or tranquillity than working from home. It is therefore expected that the combined remote working trip internalisation rate (co-working space + work from home) will meet the higher end of the range.

3.36 The co-working hub will share its location with the café and mobility hub to make it extremely accessible from both inside and outside the garden village. The repair café (see 2.2.4 Shopping) will make an attractive destination for lunch and break times, and the mobility hub will allow access by shared mobility with cycle parking and showers. There will be parking for blue badge holders, but otherwise limited spaces for private cars, with priority space allocated to active and shared modes.

3.37 This way, residents may internalise their commute with a short walk or cycle to the co-working hub. Overall, this approach will allow the co-working hub to label itself as eco-friendly, making it attractive to the growing market of entrepreneurs seeking to promote their green credentials.

3.38 The hub will also allow residents who work flexible hours, to work locally for a few hours to miss the rush hour traffic, then complete their journey off peak, preferably with one of the many shared mobility services on site.

3.39 The hub will be delivered through developer funding with building and initial running costs provided from day 1, for a minimum of 5 years to promote uptake of use. Following this it is anticipated that the hub will become commercially viable and will be funded through revenue.

Figure 3.2 - Co-working space Leamington Spa[5]

Case study

3.40 According to Statista Research, the volume of flexible office workspace in the United Kingdom is expected to nearly double between 2019 and 2023, reaching 167 million square feet in 2023[6].

3.41 There has been an increase from 10% to 13% of workers using flexi-time since 2016[7]. This offers the chance to decide the start and finish times within agreed limits.

Education

3.42 LMA will offer a range of education services to cater for all children in the village to ensure the local schools and day care centre will be the first choice for majority of parents. This will be a fundamental building block of the new strong local community. Facilities will be accessible by wheelchair and mobility scooters.

Primary schools

3.43 LMA will boast up to two primary schools. This will offer parents and children the convenience of education within the village within a short walk or cycle, and ensure that almost all related trips will be internalised.

[5] https://wdcbusinessenterprise.co.uk/spaces/cowork

[6] https://www.statista.com/statistics/754743/volume-of-flexible-office-space-united-kingdom/#:~:text=Size%20of%20the%20flexible%20workspace,the%20United%20Kingdom%202019%2D2023&text=According%20to%20the%20forecast%2C%20the,million%20square%20feet%20in%202023

[7] https://www.cipd.co.uk/Images/flexi-time-chart-download_tcm18-108398.pdf

3.44 The first primary school will be built in readiness to receive pupils at the earliest opportunity during the next phases of development. This is widely viewed as an important step to keeping journeys localised whilst simultaneously generating the social networks of children and parents alike to generate community vibrancy. It will also ensure school loyalty in the community for future years.

3.45 Walking and cycling to school will be the norm for almost all children and parents, supported by active travel programmes by the schools which prove effective in achieving positive mobility behaviour by all.

3.46 In the earlier stages of development, imaginative ideas will be explored to provide school places both physically and financially from the outset. This will tackle some of the challenges posed by the phasing of a housing development and achieving a critical mass of pupils. These will include but not be restricted to:

- Setting up an early learning school;
- Facilities;
- Liaise with local academies to assess collaboration and discuss possible funding streams with the DfE;
- Explore upfront DfE grants;
- Propose that the schools form part of the infrastructure investment, and like roads, need to be built before development opens (and there is no monetary return necessarily upfront);
- Explore whether teacher salaries can be funded through infrastructure costs; and.
- Very early primary school places will be provided at Meon Vale.

3.47 LMA could provide a nursey class, within the primary school, for under-fives. However, since this would only be open during term time, and some parents will also require day cares at other times, it is recommended that a Day Care service is set up instead. This could be sited within the same building as the school, but with its own entrance to ensure access during school holidays.

3.48 The Day Care centre could be run by variety of groups including local schools or councils, members of the community or by a private provider. This would minimise the need to travel beyond the site for most parents, and offer new employment opportunities. A unit for special educational needs could also be considered.

3.49 In order to overcome the challenge of making schools viable in the early stages, to ensure sufficient pupils, it is recommended that the delivery of housing units is made in significant phases. This will also release more funds (e.g. Section 106) to support building costs, so that the schools are ready on time.

Secondary school

3.50 LMA will be home to a new secondary school, ensuring that the wider demographic of children are educated locally, reducing the need to travel offsite for the majority of students and parents.

3.51 It is viewed that the secondary school would open towards the end of the phasing of development, since 3,000 homes are normally a minimum requirement for such an establishment. However, secondary schools are normally dependent on a larger catchment. During the interim period it is important that travel for secondary school students, to the local existing secondary schools is provided by bus, funded through the development.

3.52 In order to overcome the challenge of making the secondary school viable, it is recommended that a development of 6,000 homes is considered, delivered in substantial phases. The larger sized village would also bring benefits by supporting the proposed local amenities across the site.

Shopping (physical & online)

3.53 LMA will offer a range of accessible facilities to ensure that the default option for residents will be to shop within the village itself, within a short walk or cycle. Facilities will be accessible by wheelchair and mobility scooters. Zero emission cargo bikes and ground drones will also be available to deliver local groceries as well as online shopping directly to the home.

Supermarket

3.54 A local supermarket with a bakery will be an important feature of LMA to offer residents convenient access to groceries, thereby eliminating many journeys outside the site. Like many local supermarkets across the country, there will be limited car parking. However, the supermarket will offer delivery service via both ground drones and cargo bikes. This will be made easy using the active travel lanes.

Figure 3.3 - Zedify cargo bike deliveries

3.55 Being located near to the mobility hub will also give customers alternative ways of accessing the supermarket and taking goods home.

Case study

3.56 Up to 60 Starship ground drones operate from the Co-op's Monkston Park store in Milton Keynes delivering groceries which community residents have ordered online. Where necessary, additional robots are dispatched for larger orders. Operating since 2018, 15,000 orders were delivered within the first year of service.

3.57 The delivery area stretches to 2.7km south of the store and 2.2km north with it taking the robots up to 60 minutes to travel the full distance.

Figure 3.4 - Co-op's ground drone deliver bots, Milton Keynes[8]

Farmer's market

3.58 Located outside the Community Centre, a monthly farmer's market will add prestige to the village whilst supporting local producers. This will offer low carbon source of fruit and vegetables and engender a community spirit, offering a fun day out for the family. Cargo bikes (hired from the mobility hub by volunteers) will offer deliveries for those that may not easily carry home their purchases.

Health

3.59 The Meon Medical Centre is a pharmacy and doctors surgery 1.5 miles from LMA. The pharmacy is important for the sustainability of the surgery, and so discussions will take place regarding the best approach to including an additional pharmacy at LMA that is mutually beneficial to the community.

Repair café

3.60 The repair café is an exciting new concept which integrates a number of services under one roof, helping to maximise revenues. The café element will be strong draw for locals for refreshments and meeting place for neighbours, families and friends. It will be located close to the co-working hub and mobility hub generating extra footfall.

3.61 It will also offer repair services to household appliances, mobile phones or bicycles. Expert repair workers or volunteers are invited onsite on specific days. This removes the need to drive to local towns to return equipment.

[8] https://internetretailing.net/magazine-articles/magazine-articles/co-op-autonomous-deliv

3.62 The café can also be a place to sell and exchange goods and furniture. And where residents can sell or offer fruit and vegetables from their allotments.

Case study

3.63 The repair café concept is being planned for Meon Vale, with leadership from the Parish Council and volunteers; and this could be replicated and scaled up at LMA.

3.64 The rise of online exchange forums Gumtree and Nextdoor show the thirst for neighbourhoods to share, sell, trial and exchange a huge range of household items and electrical equipment. Driven by a thirst for a bargain and to recycle and avoid buying new when it's not necessary. Having a physical location for these exchanges to take place boosts the community and makes it open to those that do not use online forums

Post office

3.65 The area is already well served by local post offices, boasting two within a mile of LMA. Active travel infrastructure will make easy access to these in the short term, with options to include a new post office as the site grows.

Online shopping

3.66 Sustainable online shopping will be enabled through micro-consolidation centre at the Community Hub, where parcels can be received and either collected by the residents, or sent by cargo bike or ground drone to their front doors. This will minimise noise, emission and vehicle miles travelled by delivery vans around the village. The micro-consolidation centre will also comprise self-service parcel lockers, where customers can collect or send back returns at the time of day of their choosing.

3.67 Micro consolidation and parcel lockers will mean almost all deliveries will be successfully made on the first attempt, removing hundreds of VMTs every month of service vans not needing to make repeat journeys.

Leisure

3.68 LMA will offer an enviable array of leisure facilities ensuring that the first choice for the majority of recreation and sports activities will be within the village itself. This will minimise the number of car journeys leaving the site whilst strengthening the community. Facilities will be accessible by wheelchair and mobility scooters.

Greenspaces

3.69 LMA will offer an abundance of acreage afforded to parklands, hedgerows, ponds and newly-planted mature trees to offer attractive footpaths, jogging routes and places for dog walking in the near vicinity. This will enhance the wildlife and biodiversity of the area, further making it attractive for residents to explore. This also removes the need to travel outside the village for the most basic of pleasures of experiencing the local nature and fresh air.

Figure 3.5 - Active travel corridors and biodiversity, Houlton, Rugby[9]

3.70 Footpaths and cycle paths will connect with existing facilities like the Greenway and local woodland to offer additional local activities. Seating and benches will offer places to sit, rest, picnic and socialise attracting neighbours and friends alike. Playgrounds across the village will also ensure the children are well-entertained within the site.

Pub

3.71 A new local pub will be a focal point for socialising, food and entertainment within the community and ensure that residents do not always need to travel into the nearest town to enjoy an evening out. Working with local farmers it could showcase local produce in its meals ensuring low carbon farm to fork. The pub will work closely with the producers that attend the farmers markets.

Case study

3.72 East Wichel, built on the site of Westlecott Farm, is the first part of the Wichelstowe housing development to the south of Swindon. East Wichel has over 800 houses and flats plus a school, shops, offices and the Bayberry pub. By September 2011, over 400 homes were occupied. Marston's Taverns opened the pub-restaurant in May 2012. The community centre opened in July 2013. A dentist opened in the main shopping parade in November 2018 and a Co-op food store in late January 2019. A fish & chips takeaway then joined in August 2019.

[9] https://houltonrugby.co.uk

Figure 3.6 - The Bayberry pub in East Wichel[10]

Community Hub – Recreational activities

3.73 The Local Centre will benefit from a multi-functional hall called the Community Hub. This will offer an arrange of local activities attracting all demographics and making it the first point of call for recreation.

3.74 Community halls in communities across the region are proving extremely popular, with the key to success making it a flexible space which offers the services most desired. Halls that are designed with minimal flexibility, may not be able to cater to the activities of the community as it grows and evolves.

3.75 It will be located close to the mobility hub, along active travel corridors, so that it is easily accessible without the use of the car. This will allow most of the space be allocated to the hub rather than car parking. Residents will be polled on which activities are most popular. Typically this might include:

- Yoga (adults and children)
- Bridge
- Book club
- Mindfulness
- Youth club
- Badminton
- Volleyball
- Fitness classes

3.76 This will strengthen the community spirit, improve mental health and fitness, and help develop a volunteer network (e.g. shopping for older people) whilst removing significant vehicle miles travelled outside the site for recreational activities.

[10] https://www.wichelstowe.co.uk

3.77 The hub will also offer changing rooms meeting needs of all users and step free access for wheelchair users and pushchairs.

Case Study

3.78 The Barn community centre is home to Houlton's gatherings, including 'meet the neighbours' events and yoga classes. It is home to the Tuning Fork restaurant, which is run by locals, using produce from local farmers. It also houses the Visitor Centre which provides information about the future of the development. Images are shown below.

Figure 3.7 - Community Centre, Houlton, Rugby[11]

[11] https://houltonrugby.co.uk/news-events/dollman-farm-officially-opens

Case study

3.79 This Community Hub on Marmalade Lane in Cambridge is run by the local residents serving 42 homes and offering a dining room, seating area, kitchen, play area and gym. The community is a car free development.

Figure 3.8 - Marmalade Lane, Cambridge: Community Hub[12]

Case study

3.80 The Studley Village Hall is located north of Stratford with a capacity of 120 people and offers a wide range of facilities and equipment. Hire costs start at £11 per hour.

[12] https://www.theguardian.com/artanddesign/2019/may/08/marmalade-lane-co-housing-cambridge

Figure 3.9 - Studley Village Hall – North of Stratford[13]

3.81 Regular activities include:

- Monday - Line Dancing, WW, singing Group
- Tuesday - Slimming World, Pilates, Indoor Bowls, Spiritual Group, Library
- Wednesday - WI, Spiritual Group, Pilates,
- Thursday - Yoga, WW, Bridge Club, Women's Club, Young Dance class, Library
- Friday - Line Dancing, Yoga, Pilates, Kick Boxing, Library
- Saturday - WW, Library

Leisure facilities

3.82 Multi-functional sports fields catering to football, rugby, athletics will help maximise local sport participation, offering variety of activities which will be attractive for a diverse community. Sports clubs will be established by local volunteers in partnership with the local schools. This will further help to minimise the need to travel beyond the village.

Allotments

3.83 LMA will offer allotments for residents to grow their own flowers, fruit and vegetables strengthening the resilience of the community against shortages and price increases which were seen during the

[13] https://www.hallshire.com/halls/view/5405/studley-village-hall#

COVID pandemic. It also responds to the growing trend of residents wishing to spend more time outside with nature.

3.84 Residents may wish to sell or exchange their produce at the repair café or the local pub helping to sustain local businesses, whilst reducing carbon food miles.

3.85 Overall this also reduces the need to always travel to the supermarket, when there is food available locally.

Internal street design

3.86 In addition to the four main categories of placemaking, internal design within the village should also be included. It will be geared towards safe streets and enabling the maximum uptake of on-demand mobility services offered by the mobility hubs.

3.87 This will be supported by joined up active travel corridors, segregated walking and cycling lanes that cross the village, connecting key destinations such as schools, shops, mobility hubs as well as the repair café, pub, co-working hub and community hub. Trips made this way will be more convenient that by using private cars.

Figure 3.10 - Conceptual street design prioritising active travel and shared mobility services

3.88 Other features of the internal streetscape include:

- Drop curbs to accommodate pedestrians, wheel chair, pushchairs
- 20 mph speed limit
- One way, single lane for cars on selected streets
- Segregated cycle and walking paths
- Connections with the Greenway
- Connections with woodland walking routes

— Limited parking at key destinations

Case study

3.89 A report by the ITDP found that in Houten 53% of residents travel to the grocery shop by bike or on foot. This rises to 79% for errands like visiting the bank or getting a haircut, and for visiting friends and family. This is greatly enabled by the safe active travel corridors in the community.

Figure 3.11 - Active travel corridors in Houten, Netherlands

4 Vision Mobility

4.1 The Vision for mobility considers the travel options between the site and key external locations, focusing on those realistic options to reduce the need to travel to/from the site by car, and maximising opportunities to do this by sustainable other modes.

4.2 The intention of this part of the Vision is to establish the package of sustainable travel approaches (in combination with the placemaking Vision) to provide viable alternative to investment in the SWRR or other mass transit interventions.

Desirability of Mobility Solutions Survey Results

4.3 As for the placemaking element of the Vision, part of what makes a modern, desirable and aspirational place to live includes the opportunities to connect outside of the site, by a variety of modes. This also means taking into account current trends and predictions for the future of travel.

4.4 Desirability, perceived effectiveness, and feasibility of various sustainable travel options have been established from the following survey completed by the Stakeholder Engagement Group.

Table 4.1 - Desirability Survey

Desirability component	Level of importance
Walking routes	100%
Greenway	100%
Cycling routes / active travel corridors - other	100%
Bus services	100%
Rail services - Stratford-Honeybourne	83%
Mobility Hubs - focal points to pick up shared mobility	79%
Automated shuttles	79%
E-bike Share	75%
Rail services other	75%
E-Cargo Bike Share	71%
Demand Responsive Transport (app hailing mini buses)	67%
Bike Share	67%
Journey planning app / platform (Mobility as a Service)	63%
Car Clubs (EV)	58%
E-Scooter Share	54%

4.5 The results demonstrate that building in infrastructure for active travel, along with buses are the most desirable characteristics for a sustainable community at LMA. This is in line with the sustainable transport hierarchy which identifies the most efficient and sustainable modes as being walking,

followed by cycling, then by public (or shared) transport. The Stratford Greenway also sits at the top of this list of desirable features.

4.6 Following the highest ranked elements are re-opening a rail service between Stratford and Honeybourne, providing Mobility Hubs, automated shuttles, e-bike and e-cargo bike sharing, and other rail services.

4.7 Demand responsive transport, bike sharing, Mobility as a Service (MaaS), car clubs and e-scooter sharing are ranked medium to low.

4.8 Additional components suggested by respondents include:

- Remove through-traffic from residential neighbourhoods
- Increase number of electric vehicle charging points across the District
- Integrated sustainable transport infrastructure
- Safe crossing introduced on Station Road
- Government initiative for not owning a car/not being a driver
- Charging point compound
- Links to Meon Vale
- Changing housing mix to attract those who are less car dependent
- Mobility Hub at the entrance to LMA, and a secondary Mobility Hub where LMA meets the Greenway
- Importance of building on existing infrastructure
- Surface upgrade between LMA and Station Road
- Efficient and green mass transport (not fossil fuels)
- Transport options designed and available for all users

4.9 The components that received the lowest ratings relate to emerging technology rather than well-established transport options, with the exception of automated shuttles which are of a medium desirability. The results however are reflective of a general agreement to provide a range of travel options to encourage sustainable travel and a shift from the private vehicle.

Vision Components – Mobility

4.10 Exemplar garden settlements begin with development of the visionary masterplan (i.e. the placemaking of a community), followed by exemplar connectivity to cater for off-site movement to encourage and facilitate maximum uptake of sustainable modes.

4.11 The off-site mobility features necessary to create the widely agreed Vision are set out in this section, by mode and topic where relevant. There is naturally some overlap between components.

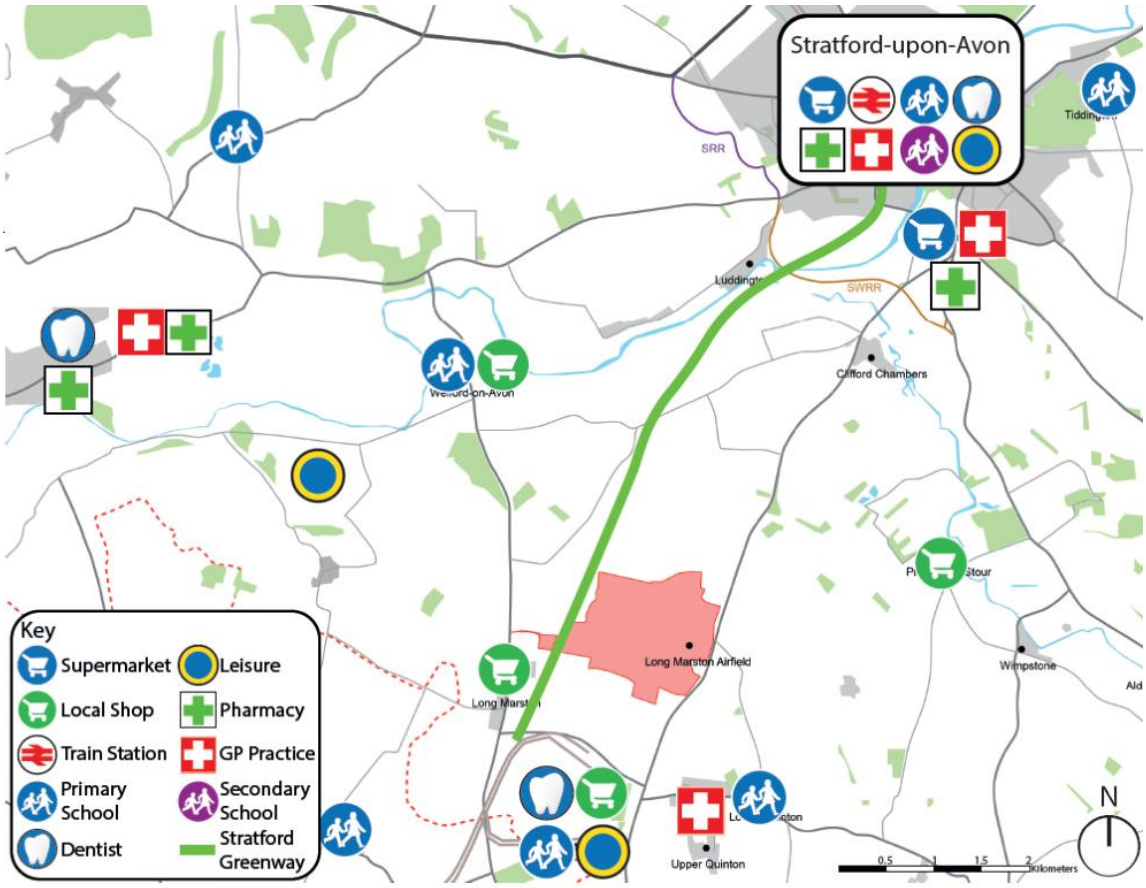
4.12 This combination of measures, which are available and in use in other parts of the UK right now, provide the strongest basis for sustainable off-site movement to/from LMA, where movement will occur. Delivered in a positive and upfront manner these measures will create that choice in how to

travel for residents, workers, and visitors to some extent, reducing the habit of reaching for the car keys on leaving the house.

Walking Routes

4.13 Walking to/from LMA is likely to comprise short trips only, with the exception of some made using the Stratford Greenway. Destinations which are reasonably reached by walking from LMA include Meon Vale (primary school, visiting friends/family, local convenience store, leisure centre, church etc), Lower Quinton (post office, local shops, church, visiting friends and family etc), and Long Marston (local convenience store, church, pub etc). Leisure journeys will also be undertaken outside of LMA. The pedestrian infrastructure to support this desired network will therefore be fairly contained to the local area.

Figure 4.1 - Local Facilities



4.14 Walking routes surrounding LMA must be of a high quality, direct, and attractive, with excellent wayfinding. Natural surveillance is important as is lighting (low level or otherwise) and width. It may be that some of these routes are adjacent to roads such as along Campden Road or Station Road, or that part of the off-site walking network is formed by traffic-free routes such as along the Greenway. Importantly walking routes will permeate seamlessly with the internal pedestrian infrastructure within LMA. Appropriate safe crossings are also essential to create continuous walking routes along key pedestrian desire lines.

4.15 High-quality surfaced routes are defined by the criteria set out within DMRB CD 143 and Manual for Streets 2 where relevant, and should be a minimum width of 2m but with a desirable width of 2.6m with a reasonable separation from the carriageway, in order to create the network suitable to meet the Vision for LMA.

4.16 A number of public rights of ways (PRoW) also surround the site, including named routes such as Monarch's Way (along the Greenway) and the Heart of England Way (east-west route). Such routes are normally used for leisure purposes and may offer limited connectivity for other journey purposes.

4.17 It may be necessary to upgrade existing or proposed routes to ensure they meet the optimum standards to provide maximum opportunity for pedestrians to circulate around the site.

4.18 The Stratford Greenway is addressed more specifically in a following section.

Case Studies

4.19 Walking is a staple of movement modes and every new settlement across the UK provides an external network to support pedestrian movement. Walking for short journeys not only provides an environmental benefit but also promotes healthy lifestyles, which is more likely to be the leading reason an individual will choose to walk. This includes walking for a purpose or for leisure, such as walking the dog.

Cycling Routes

4.20 Cycling to/from LMA has the opportunity to capture many short to medium length trips surrounding the new settlement, which will include destinations covered also by walking, but also those further afield such as Stratford-upon-Avon. Whilst some cyclists are comfortable on the local road network (some of which accommodates the two local National Cycle Network routes) it is necessary to ensure that infrastructure is in place to facilitate the majority of cyclists and potential cyclists for these short to medium-length journeys.

4.21 The Greenway provides such a traffic-free route and is discussed further in the following section.

4.22 There are two National Cycle Network (NCN) routes passing LMA which present an excellent opportunity for connection to the wider area. These present opportunities suited more to leisure cycling as they are long-distance routes, however, can form part of a local journey also.

4.23 NCN route 5 follows forms part of the Greenway in the vicinity of the site, routing onto Station Road to the south of the site and towards Ilmington and Shipston-on-Stour. Further afield this route links Reading and Holyhead, via Oxford, Stratford-upon-Avon, Birmingham, Chester, and Bangor.

4.24 NCN route 41 is currently shorter and connects Long Marston with Honeybourne on-road. It is broken by the Greenway but continues east then north of Stratford-upon-Avon towards Warwick. Once completed the new route will connect Bristol, Gloucester, Stratford-upon-Avon and Rugby.

4.25 The Vision for cycling at LMA is to connect with these long-distance routes through dedicated infrastructure, ensuring that traffic-free routes within the site effortlessly feed into the existing provision and local wayfinding is improved if necessary.

4.26 To promote cycling for short to medium length journeys outside of LMA it is recommended that a study is undertaken by Sustrans who are a national walking and cycling charity, to establish the key connections available, desire lines, and indicative cost of upgrading parts or all of routes to increase its attractiveness. These upgrades will be necessary to meet the Vision for cycling at LMA. WCC's emerging LCWIP will be considered and relevant proposals included within this.

4.27 The key factor to identifying, improving, or creating a cycle route is ensuring it meets demand and provides a continuous link to key destinations.

Case Studies

4.28 Cycling is another traditional form of movement and most new settlements across the UK provide an external network to support cycling movement.

4.29 At a new settlement in Cambridge – Trumpington Meadows – a household survey in 2017 sought to establish the mobility characteristics for residents for off-site travel. Good quality off-site sustainable travel infrastructure was already available or provided as part of the scheme, and the survey identified the following:

- The general mobility hierarchy for journeys to work was, in order of preference: cycling (61%), car (25%), public transport (8%).
- Of trips to local (off-site) primary schools, 40% walk and 60% cycle. At the recently opened Community College all travelled by cycle or bus.
- The majority of people working in Cambridge City Centre and neighbouring employment areas prefer to cycle to work (approximately 4km). On occasion and usually weather related, they will take the bus or drive.

Stratford Greenway

Active Travel

4.30 Stratford Greenway provides an exemplar traffic-free link between Long Marston and Stratford-upon-Avon, also extending south to Meon Vale. It is currently a popular leisure route but has the opportunity to be a direct link for pedestrians and cyclists in particular, for daily trips between LMA and Stratford-upon-Avon. It presents a somewhat unique opportunity to facilitate direct journeys between these locations and the Vision is for this upgraded route to consume some daily trips such as commuting, leisure/recreation journeys, and potentially a small number of education trips.

4.31 At the moment the approximately 8km-long Greenway is surfaced for its majority with unsealed gravel with only a short section in a sealed surface. There are 5 road crossings which are gated or denoted by bollards, preventing easy permeability by some types of cycles, and meaning cyclists have to dismount and cross the road at times, and it terminates at the Severn Meadows roundabout at the south of Stratford-upon-Avon.

4.32 As part of the commitments for Phase 1 of LMA the entirety of the Greenway between LMA and Stratford-upon-Avon is to be upgraded to a sealed all-weather surface to support cycle commuting

and other utility journeys from the site. This is set out within the S106 Agreement (Schedule 5 Part 6) and is to be facilitated through S106 monies paid to the County Council who will undertake the work. A footway/cycleway is also committed between Campden Road, Phase 1 of LMA and the Greenway. This link must be of high-quality in line with current guidance, and through delivery of the whole site, benefit from natural surveillance and appropriate lighting.

4.33 It is recommended that the Greenway is upgraded in two parts, firstly to make the link more attractive to pedestrians (including wheelchair users), and cyclists alike, whilst maintaining accessibility for equestrians. Appropriate lighting is vital for the entirety of the route which may be low level to support ecology considerations. Each of these modes of travel operates at very different speeds for direct trips such as commuting and education, and sharing space can often be detrimental to the desirability of the route for all permitted modes of travel. The average speed of a cyclist is about 15 km/h (9 mph) but may typically reach up to 40 km/h (25 mph), whereas the average speed of a pedestrian is around 5 km/h (3 mph). This accounts for cycling with children and dog walkers, but also those who are travelling for journeys such as commuting. E-bikes provide assistance up to a maximum speed of 25 km/h (15.5 mph).

4.34 As such there is a clear differential, and the ideal solution is to segregate pedestrians and cyclists on the Greenway in a way that is suitable for users of impaired sight. This would be along the entirety of the route where width accommodates. In accordance with DfT LTN 1/20 a segregated 3-4m cycle path should be provided (two-way) depending on anticipated flow. Although the expected flow on the Greenway by cyclists is likely to be under 1,000 (one or two-way) in a peak period, where width accommodates it would be beneficial to provide a 4m route to allow for maximum take-up of the route. The pedestrian, wheelchair and equestrian path should be a minimum of 2m in width, if not more to encourage a range of uses by all modes and to facilitate overtaking by equestrians where necessary.

4.35 At the road crossings it is suggested that formalised crossings are provided in line with the speeds and traffic levels of those roads if applicable, to increase safety for Greenway users and meet the Vision to accommodate these modes over facilitation of vehicular traffic. Through Stakeholder engagement the crossing points at Milcote Road and Station Road were raised as the primary crossings to focus on given that these locations currently create a barrier to continuous movement for users of the Greenway. Most of the road crossings are minor links or roads for farm use so this may not be necessary at every crossing, however it is noted that the Greenway narrows in some places where crossings are provided which is somewhat detrimental to the efficient progress of users. Therefore, it is suggested that the route is widened where feasible to provide a continuous link.

4.36 The main constraint to the Greenway as a direct conduit for active travel movement is its termination at the Severn Meadows roundabout in south Stratford-upon-Avon. However, for both pedestrians and cyclists there are opportunities here to connect to existing infrastructure which can be improved to meet the required standards for these modes.

4.37 It is essential that a signal-controlled toucan crossing across Wetherby Way for both types of users is provided. There is already a shared cycleway/footway on the western side of the A4390 heading north towards Stratford-upon-Avon but this is narrow and does not appear to be well maintained. Another traffic-free route follows on from this at Summerton Way, leading to Stratford-upon-Avon rail

station via Alcester Road or Willows Drive North. Each of these routes have an element of cycle provision but paths are not well joined-up, therefore some improvements will need to be considered. On the whole these are untapped links that require connecting with the Greenway to reach their full potential. It is suggested therefore as part of the Vision for LMA that the cycleway/footway on the A4390 is widened in line with width constraints to meet the standards of DfT LTN 1/20, and appropriate signal-controlled crossing facilities are provided, and to the traffic-free route in the north. At face value it appears that there is width available within the assumed adopted highway limits on the A4390 road within verge space, nonetheless this is observed to be a wide road which may benefit from reduced width in lieu of active travel space.

4.38 This addresses connectivity with the station and can facilitate connections to the Town Centre, but is not direct. There are various advisory routes (mainly on residential roads) through Old Town, but there would be benefit in exploring opportunities to provide a dedicated cycleway/footway on the northern side of Severn Meadows Road, connecting to the path alongside the River Avon at Lucy's Mill Bridge. Again it appears at face value that there is ample verge space along either side of Severn Meadows Road up to its crossing of the River Avon. A toucan crossing would also be required to connect the Greenway here. The Greenway already provides a spur connecting under Severn Meadows Road to Lucy's Mill Bridge, however this does not benefit from any natural surveillance.

4.39 An important point raised through Stakeholder discussion is the availability of suitable bike/scooter storage and showers at the destination. The example of a public bike hub in Milton Keynes was noted as an excellent facility to meet these needs. This is something which supports the Vision for LMA to be provided within Stratford-upon-Avon Town Centre or rail station.

Automated Shuttles

4.40 The second intervention to the Greenway in the Vision is to create a dedicated corridor to facilitate automated shuttles between LMA and Stratford-upon-Avon, and it is understood that there is ample width within the confines of the disused railway land to accommodate this corridor and widening of the Greenway to support some or all of these measures was welcomed through Stakeholder discussions. The shuttles would be separated from pedestrians and cyclists potentially by a low fence to protect dogs and users of impaired vision from the corridor, but would otherwise form part of the complete movement corridor on the Greenway. More detail on automated shuttles is provided further in this document.

4.41 The land in which the Greenway sits is owned by the County Council and the route itself is a permissive bridleway. As such any improvements would need to take this status into account and a WCHAR would be required along with any other permissions to create an automated vehicle route.

4.42 There are some additional barriers to this Vision for the Greenway, primarily that should the railway line between LMA and Stratford-upon-Avon be reintroduced this would enormously decrease the desirability of the route for active travel users, and additionally that re-surfacing the link may have disbenefits for ecology considerations. Widening of the Greenway to accommodate a segregated active travel corridor as well as automated shuttles may require infrastructure upgrades particularly at river crossings.

Case Studies

4.43 As an example of how providing dedicated active travel infrastructure can alter habits, in 2012 in Toronto, Canada, painted cycle lanes were upgraded to segregated lanes on a key route through the city. This resulted in the number of cyclists using this route almost tripling. 38% of cyclists using the route post-improvements did not cycle before the construction of the segregated lanes, which indicates a 61% total increase in the number of cyclists due to the infrastructure.

4.44 There are numerous examples of disused railway lines being converted into active travel routes, many of which are observed to be popular amongst pedestrians and cyclists. A few examples include the Camel Trail between Padstow and Wadebridge which is 18 miles long, and the Bath to Bristol cycle path which is 13 miles long (3m-wide tarmaced surface). The latter is well documented to be used for commuting as well as leisure purposes with it being reported to carry at least one million trips per year.

Car Clubs (EV) & Carpooling

Car Clubs

4.45 Car clubs are a popular choice for new settlements and employment sites, they offer a short-term car rental service providing cars spread around the development for easy pick-up/drop-off. These typically operate on a member only service and do not normally need to be booked in advance, and hence lend-themselves for easy use by residents and workers at a site such as LMA.

4.46 These car clubs offer an environmental benefit and support behaviour changes to car use amongst users. They do this by providing an alternative to owning a car for many people (saving money for individuals) and by shifting attitudes to shared ownership and transport on the whole.

4.47 At LMA it is acknowledged that at times many people will want to travel to/from the site by car. However, the determination of needing a private vehicle to do so will depend somewhat on the regularity of this journey amongst other factors, i.e. an individual works from home, has children who attend the local school, travels to see friends by cycle or DRT, and is able to shop within LMA on a weekly basis may not desire to own more than one vehicle for the purpose of occasional trips. Car clubs are as such an excellent option for LMA and should be provided from the outset of development, with car club spaces available within convenient walking distance from all homes and employment premises. Principally these may be located around the Mobility Hubs as well as elsewhere around the settlement.

4.48 The provision of car clubs will encourage people to adopt more sustainable travel habits with the knowledge that should an emergency arise – such as the need to travel somewhere quickly, or the need to run an errand, collect a parcel, or vary their journey in another way – there is a flexible option which can be used as required on-demand.

4.49 At LMA it is suggested that in combining a car club with a detailed parking strategy, house design, and movement network can do more than just a car club can in taking car trips off the network. Additionally, at LMA the intention is that all car club cars are fully electric. The direct relationship these measures have to trips is to be presented in Part 2 of this study.

4.50 To promote car clubs for residents and workers at LMA free membership should be offered to residents when they move in (first occupation), as well as for initial employees based on site for a minimum of 5 years, if not longer, along with credit for using the vehicles. This is to establish habits from the very beginning.

Carpooling

4.51 Carpooling is the sharing of lifts using an individual's private vehicle, usually managed through a ride-sharing platform/app. This creates an exclusive network of members allowing matching of lifts.

4.52 The Community Concierge will set up and operate a carpooling scheme at LMA which has the potential to reduce the number of car trips to/from many local destinations on a regular basis. The effect of this on trip generation will be established in Part 2 of this study.

Case Studies

4.53 Car club studies have demonstrated that each shared car replaces between eight and eleven private cars. CoMoUK reported that in 2020 they operated a fleet of 6,060 car club vehicles in Britain, with 229,464 active members (out of 634,606 total members). In 2020 each car club has taken about 18.5 private cars off the road on average. This is additionally environmentally beneficial as the car club cars tend to be newer and more efficient than many private cars. They are also moving towards a full electric offering.

Carpooling

4.54 Vectos led the CHUMS project, an EU funded project, which took a new approach to carpooling by integrating three measures – Attract, Inform and Retain - to ensure carpooling schemes in workplaces and universities are effective. The project operated in five demonstration cities – Craiova, Edinburgh, Leuven, Perugia and Toulouse, and Toulouse achieved 58,000kms of carpooling per month through 530 registered users.

4.55 Liftshare is an online car sharing platform and operator, and was introduced to Johnson Matthey in Royston, a site with over 2,000 employees, where there was significant strain on parking infrastructure. Prior to the scheme there were a reported 980 single-occupancy vehicle trips. After the scheme, 106 employees were sharing their commute, removing 64 single-occupancy vehicle trips from the site. This reflects a reduction of 6.5%.

Demand Responsive Transport (DRT)

4.56 Demand-responsive transport (DRT) is a modern, user-orientated from of public transport, with flexible routing, pick-up and drop-off locations, and timetabling matched to passenger needs.

4.57 DRT has the potential to provide services as and when required without the need to provide a service throughout the day at times when demand may be less. This can lead to a more efficient and effective economic model for providing mobility, and a more responsive form of mobility.

4.58 LMA is well suited to be served by a comprehensive DRT scheme that encompasses the settlement, Meon Vale and surrounding villages, Stratford-upon-Avon, Honeybourne, and Wellesbourne. There is

potential at LMA for DRT to replace traditional bus services by providing the same destination and frequency options, but with more flexibility built into the service and hence additional route options and more frequent services.

4.59 A reasonable level of support to DRT services was clear through stakeholder discussions, along with some concern over this developing technology and its potential to detract from traditional bus services. The Vision for LMA looks 10/20+ years into the future where traditional bus use is already declining post Covid-19, and DRT is the natural evolution of conventional buses. In this context therefore the Vision looks beyond the travel norms of today and of the past, to the direction future generations are moving which is towards shared and virtual mobility. DRT does this whilst also maintaining the level of service expected by current bus users.

4.60 It is crucial that a DRT service is developer funded for a minimum of 5 years, if not longer, with appropriate incentivisation for residents, visitors and workers at LMA to use the service. This might involve free passes for 2 years for each household etc, or subsidised vouchers to put towards passes for example. Lack of onward funding is often the reason that new DRT schemes fail before they are commercially viable and it is essential that the right infrastructure and marketing is put in place at LMA to support a DRT network in becoming commercially viable. This will require significant support from the County Council's Public Transport Team.

4.61 DRT has been considered elsewhere in the County, with Warwickshire County Council identifying within the Bus Service Improvement Plan for Warwickshire (October 2021) that a DRT pilot, including booking app, will serve residents in rural settlements to the west of Warwick and parts of Kenilworth. This has now been launched. Additionally this report states that where new developments are not large enough to justify fixed bus routes, or where these routes would not cater for most of the travel demand, DRT will be investigated.

Case Studies

4.62 The city of Milton Keynes recently launched a DRT system named 'MK Connect' to integrate with the existing public transport network ensuring that public/shared transport is available anywhere in the borough. This is also a good example of Mobility as a Service (MaaS) which is covered further in this document. The MK Connect app matches users with the most appropriate service, be that a traditional bus or a demand responsive bus, but journeys can also be booked via telephone.

4.63 The MK Connect service ensures that all passengers are picked-up and dropped-off within 400m of their location and destination, if not less. This is one of the significant benefits to a DRT service over a traditional fixed-route route bus.

4.64 MK Connect is operated by Via and covers a wide area encompassing the entire borough of Milton Keynes rather than just the city. Prices are stated to be £3.50 during peak hours, £2.50 at all other times, and £1 to 'All in 1 MK' cardholders. Older person's and disabled person's bus pass holders are also catered for after 9.30am on weekdays and all weekend.

4.65 There are currently 23 vehicles in operation with 12 of these being electric vehicles, and the service sees 5,500 rides per week (as reported by Via). It is reported that the service is delivering on its financial objectives and is on course to reduce Council spending on buses by approximately £1.4m.

4.66 Arriva Click is one example of a successful and growing DRT service in the UK. A current example of Arriva Click delivered through Section 106 funding is at Lubbesthorpe Estate near Leicester.

Figure 4.2 - Arriva Click DRT service at Lubbesthorpe Estate, Leicester

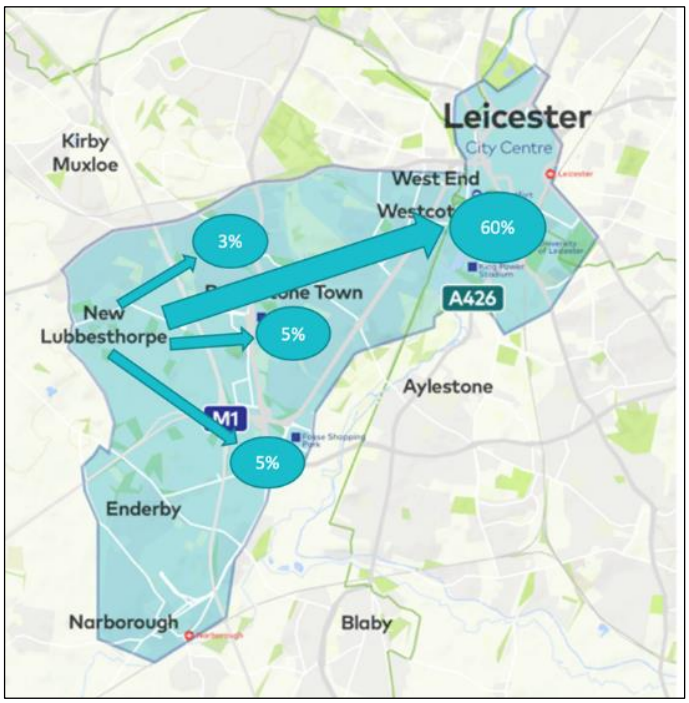
4.67 Arriva Click are serving a new residential / mixed use development in Leicester at New Lubbesthorpe. Once completed, the settlement will have 4,250 dwellings, 3 schools, employment opportunities, local services and a range of retail. In the first six months of the Arriva Click service, which is funded by Section 106 monies for 5 years, 5,000 journeys had been made to and from New Lubbesthorpe including patronage from adjacent communities.

4.68 A snapshot of patronage from around the site is broken down below (covering a one-month period);

- Central Leicester (60% of rides)
- Braunstone Town (5% of rides)
- Fosse Park (5% of rides)
- Leicester Forrest East (3% of rides)
- Other (27% of rides).

This is also shown in Figure 4.3 below.

Figure 4.3 - Arriva Click Case Study – New Lubbesthorpe



4.69 In addition, Arriva Click has also provided some statistics for their operation in Liverpool. Whilst not necessarily directly comparable, the data assists in gauging the benefits DRT have in terms of reducing existing levels of traffic.

4.70 A survey undertaken of Arriva Click's existing operation in Liverpool (February 2019) provided the following extraction statistics from other modes of transport:

- 45% previously used local buses;
- 21% previously used taxis;
- 18% previously drove their own car;
- 6% walked;
- 5% travelled by train;
- 2% were passengers in another car; and
- 2% cycled.

4.71 It is apparent from the summary above that a good proportion (39%) switched to the Arriva Click service from either a taxi or their own car. This demonstrates that the service can attract users from a range of different transport modes and remove vehicles from the existing highway network.

4.72 In December 2020 Arriva Click launched the DRT service in Ebbsfleet Garden City connecting residents on the new community with Bluewater shopping centre, Greenhithe, nearby railway stations and the local hospital.

4.73 It is funded by local house buildings of the Garden City and through conversations with Arriva Click is attracting significant passenger numbers, replacing an infrequent bus service. Services run seven days a week between 06:00 and 01:00.

4.74 Launched by Worcestershire County Council in July 2021, Bromsgrove on Demand (BOD) attracted more than 10,500 journeys in the first six months, equating up to 120 passengers per day. Passengers have used the service to get to work, school, to the shops and leisure facilities.

4.75 The Worcestershire on Demand app is used to select pick-up and drop-off location with a telephone booking number also available. The system directs people to nearby 'virtual bus stops' for pick-up and drop-off, allowing for efficient shared trips. Two Diamond mini-buses are being used on the service and they can each seat 13 passengers and it runs 7am to 7pm. The trial ends in summer 2022.

4.76 DRT forms part of the councils' Bus Service Improvement Plan which aims to develop solutions to provide an environmentally sustainable, accessible and fully integrated transport network.

Bike and E-bike sharing

4.77 Bike sharing schemes offer short-term bike rental that can enable point-to-point trips through a self-service docking station, or through dockless schemes. These schemes can make cycling more accessible and salient for both on and off-site journeys.

4.78 With technology now bringing significant change to the cycling industry, e-bikes are now the biggest single market sector in the cycling industry and have opened up cycling to a range of users it may have previously been prohibitive to. E-bike sharing schemes can be operated in the same way as traditional bike sharing schemes, with charging completed at docks.

4.79 There are many operators of bike/e-bike sharing schemes across the UK with many reporting commercial success, and data indicating that many users were not already bike users. This implies that some consumers of these bike schemes have switched from another mode of travel, either due to the convenience of the availability of bikes, or potentially this in combination with access to an e-bike (which are normally substantially more expensive to own than a push-bike). LMA is an ideal settlement to support a bike/e-bike sharing scheme to facilitate short journeys within the site, with docking stations (if desired) located at the Mobility Hubs, as well as key nodes such as schools, shops etc, ensuring all homes and places of work are within walking distance of a bike.

4.80 For off-site trips LMA also presents an excellent opportunity for a bike sharing scheme. The enormous benefit that the Greenway provides for cycling journeys into Stratford-upon-Avon means that infrastructure for comfortable and direct cycling is already available, and in tandem with such a scheme medium-length journeys to/from Stratford-upon-Avon (as well as Meon Vale) will be seamless. Schemes that may not be point-to-point journeys such as from LMA to Stratford-upon-Avon railway station and onwards (including return journey), can be supported through a scheme such as Brompton bike hire. This offers short-medium term bike rental from self-serve lockers located at Mobility Hubs, and can be easily carried on trains, into the workplace etc. Brompton also offer an e-bike sharing scheme. This negates the need for individuals to own expensive bikes in order to make a journey by bicycle.

E-scooter sharing

4.81 E-scooters are becoming commonplace in cities and towns. Rented e-scooters became legal on 4th July 2020 on UK's streets within pilot schemes, and private use is expected to be legalised by the government in 2022. At LMA it is expected that in the future, some residents will own e-scooters, but as with bikes it is recommended that the option for short-term rental through a sharing scheme is provided. E-scooters also provide an excellent alternative to driving around the site for short-journeys, and can be utilised on the Greenway, other dedicated cycling infrastructure around the site, as well as on road.

E-cargo sharing

4.82 E-cargo bikes can provide an alternative to the car where transporting goods is required, such as a local shopping trip. A sharing scheme for this mode can be operated at LMA in a similar fashion to other bike/scooter schemes.

4.83 These schemes can facilitate the 'first' or 'last-mile' element of a journey to increase take-up of sustainable travel over the private car.

4.84 BlueZoom suggest a ratio of 1 bike or scooter per 140 residents, and these schemes would be developer funded for a minimum of 5 years to ensure maximum take-up, along with membership/ride use subsidisation.

Case Studies

4.85 Ovo Bikes support Cardiff with a comprehensive bike and e-bike sharing scheme that utilises docks. Both types of bikes are integrated within the scheme to provide point-to-point connectivity between many parts of the city and the city centre, as well as each other. The e-bikes were launched in late 2021 and increase the entire fleet size to over 1,000 within Cardiff and surrounding areas. Over 1.1 million bike rentals have been made since the scheme launched in 2018 (then known as Next Bike), and at this time 84% of rentals were reported to be under 30 minutes long, with routes tending to be commuting between transport hubs and work or home, and the same for shopping. Thus often filling in that first or last mile aspect of the journey.

CoMoUK have additionally found that 17% of their riders choose to use a bike sharing scheme instead of using a car, with 30% using it for commuting, 23% in combination with the bus, and 35% in combination with the train (Bike Share Survey, 2019).

Mobility Hubs & Community Concierge

4.86 Mobility hubs will provide a focal point within LMA, allowing for seamless integration across different modes of transport, multimodal supportive infrastructure, and placemaking strategies to create activity centres in LMA that particularly maximise first and last mile connectivity.

4.87 This will support local living, low-car lifestyles and the reallocation of space from roads and carparking to housing and public realm, and have the potential to contribute significantly to decarbonising transport.

4.88 For external travel Mobility Hubs can help to fill gaps in the public transport network in a more cost-effective way than new public transport services, unlocking private sector investment. They harness new technologies in offering on-demand services which are growing in relevance to younger generations and will support the recent proliferation in home and third place working. These features are covered within this document in more detail.

4.89 It is recommended that the Mobility Hub network will include Primary, Secondary and Tertiary hubs. Primary Hubs are staffed by a community concierge team and should include a café, all mobility options, WiFi, and are linked to active travel routes. This primary hub would also act as a microconsolidation centre for deliveries, a Work Hub, a community space, and the community concierge team will not just be a friendly part of the community, but they will work with schools, business and residents on bespoke travel planning.

4.90 The Vision for LMA is that a primary Mobility Hub be located within the local/town centre, as a focal point for community and travel interaction, with secondary hubs at other important locations such as workplaces, schools, the Greenway etc. Tertiary hubs will fill the gaps ensuring that any type of Mobility Hub is within a 10-minute walk from every home or workplace, thus each mode of travel is readily accessible for all users.

Figure 4.4 - Primary Mobility Hub Example

4.91 Operating within the primary (and possibly secondary) Mobility Hubs is the Community Concierge team who facilitate all forms of mobility. They provide information in relation to bike sharing, car clubs, carpooling, demand-responsive transport, electric vehicle charging points, and automated shuttles. Walking, cycling (active travel) and public transport maps, and public transport timetable information (including DRT), will also be available. Located on or within close proximity to an active travel corridor, the Mobility Hubs will provide bike hire, cycle parking, car club parking spaces, electric vehicle charging points and a bus stop/DRT pick-up/drop-off point readily available and easily accessible. Travel planning for the site will be operated through the Community Concierge.

4.92 Associated with the Community Concierge will be a micro consolidation centre. Virtual mobility is getting mobility through the virtual networks, often via smart phones and computers. It includes interacting with friends on social media, getting news and information without the need to physically travel, and shopping on the internet, all of which has increased dramatically in recent years. The delivery of goods both enables, and is as a consequence of, virtual mobility.

4.93 A micro consolidation centre is a single location for deliveries and pick up. Deliveries to a single point is a more efficient way of receiving goods, with some claiming that this can be up to 20 – 54% more efficient in terms of energy and pollution than the traditional method of 'white vans' trawling around residential areas.

4.94 Onward movement is either via direct pick up (perhaps on the way home from work) or by delivery using electric bikes, or cargo bikes, or ground drones. Ground drones are semi-autonomous wheeled drones that operate on footways and footpaths to deliver goods locally. They are now being used for this purpose in Milton Keynes, Greenwich and Southwark.

Figure 4.5 - Cargo Bike and Starship Ground Drone examples

4.95 The benefits of micro consolidation together with the Community Concierge include that there is always 'someone in' to receive the goods, greater opportunities for meetings between people who might not otherwise come into contact with each other, more efficient movement of goods, and a tendency for a healthier lifestyle as more people move around in the local community by active travel.

4.96 Funding associated with Mobility Hubs relates partly to the up-front cost of construction and running of services (café, mobility schemes etc), and partly to the appointment of the Community Concierge (or team). The Primary Mobility Hub should be operational from the outset to support residents already living (and workers) at LMA in Phase 1, and new residents/workers from the very beginning, in order to capture unsustainable travel behaviour when mindsets are most flexible. Subsequent Mobility Hub infrastructure will also need to be in place prior to adjacent houses/employment at LMA. The Community Concierge is recommended to be funded for a minimum of 10 years if not longer.

Case Studies

4.97 A Community Concierge service has been established by Vectos at Milton Park in Oxfordshire, one of Europe's largest multi-use business parks with circa 250 companies. In 2016, a Behaviour Change Advisor was appointed to work with the companies and individuals to implement a range of behaviour

change initiatives, with the objective of reducing Single Occupancy Vehicles by 2%. By 2018, the SOV rate had reduced from 69% to 63%, while the mode shares for bus, car sharing and cycling had all increased.

Bus Services

4.98 Public transport in general has a wide range of benefits, including cost-efficiency, reducing congestion, improving air-quality, and increasing mobility. Traditional bus services offer a sustainable travel option for journeys between LMA and local/wider destinations, and a number of improvements are committed to as part of the Phase 1 consent. The commitment for Phase 1 is to route buses into the site and increase frequency meaning there will be 2 services per hour between Meon Vale and Stratford-upon-Avon between 7am-7pm Monday to Saturday, as well as an hourly service on Sundays. The hourly service is to be diverted into Phase 1 of LMA.

4.99 To support the Vision for the complete LMA settlement public transport provision will need to offer a 'turn-up and go' service, meaning that an individual should expect to turn up at the bus stop at any time (during sociable hours) and expect to wait no longer than 10-15 minutes for a bus. This level of service is essential to provide a realistic alternative to the private vehicle for those who may otherwise use their car for such a journey.

4.100 Typical barriers to using traditional bus transport are frequency, reliability, and comfort. As such each of these must be tackled by new or improved services at LMA (also benefiting Meon Vale and surrounding villages).

4.101 Taking reliability first, this refers to buses arriving on time every time (somewhat mitigated by having a 10-15 minute service), and reaching the destination in good time. The journey time for buses travelling into Stratford-upon-Avon are known to be impacted greatly by road congestion during peak periods (as per pre Covid-19 peak periods) and there is limited scope to improve this situation. Part 2 of this study will provide a high-level investigation into the potential for bus priority measures at key junctions, however this is unlikely to make a meaningful impact on reliability of journey times delayed through traffic queuing. Of course, this situation will be the same for a DRT service, however the benefit with DRT is it can re-route if feasible and if users choose to travel at a quieter time of the day (outside of peak periods) it negates the need for an empty bus to be sitting in traffic.

4.102 Bus fleets are often aged and do not offer high standards of comfort to passengers. It is important that any bus service serving LMA is of a high-quality, including clean and comfortable seating, appropriate heating/cooling facilities, RTI screens on-board, Wi-Fi and CCTV, with multiple wheelchair spaces per bus. This allows for an attractive alternative for individuals who prefer the comfort of their own car, and for working etc on-board. These features are especially valuable should the bus be sitting in traffic for any extended length of time.

4.103 Through stakeholder discussions the issue of difficulties with creating a bus hub in Stratford-upon-Avon town centre were raised, with it being suggested the operating bus companies would benefit from some flexibility over a hub being located just outside of the town centre. This is an important consideration in developing a strategy to connect Meon Vale and LMA to the Town Centre.

4.104 Bus network improvements can be integrated with potential southern Park & Ride aspirations south of the River Avon. This would increase demand adding to the subsidisation of the service.

4.105 At LMA a vastly improved bus service(s) is required to be pump-primed to a 10-15 minute frequency for a minimum of 5 years, along with free or subsidised bus passes/vouchers for all residents and workers who claim one. Outside of this offer it must be ensured that prices are reasonable and present a realistic alternative to driving. This service(s) will need to meet the criteria set out above at a minimum, and it would be highly beneficial to provide also services to/from Wellesbourne, Honeybourne rail station, Moreton-in-Marsh, Shipston-on-Stour, Chipping Campden etc where there is demand. This is another benefit of DRT over traditional bus services in that it has the ability to offer a wider range of destinations without running expensive vastly-empty buses at times of the day.

4.106 Warwickshire County Council's Bus Service Improvement Plan (October 2021) presents survey results for bus patronage across the County which shows that bus passengers had reduced by 19% between 2009 and 2018, compared with a 7% reduction across England. The Covid-19 pandemic has had a further impact on this with a 49% reduction between May 2019 and May 2021. Whilst this is expected to bounce back to some extent, it is unlikely and not forecasted (nationwide) to return to pre Covid-19 levels of usage. Evidently bus patronage was reducing in the County prior to the Covid-19 pandemic over a period of almost 20 years and so this is a well-cemented trend.

4.107 Whilst traditional bus services have been a staple of travel in the UK for decades, their popularity and use are dwindling especially following the Covid-19 pandemic, and as such it is recommended that an all-encompassing DRT scheme is provided for LMA (and surrounding areas) in lieu of a traditional bus service. Such a DRT scheme will provide the key aspects of a bus network (frequency, reliability and comfort), but in a more efficient way that is moving in line with technology and attitudinal behaviours. DRT is essentially the evolution of traditional buses.

4.108 The County's Enhanced Partnership Plan seeks to:

- Provide more frequent buses;
- Enable bus services to become faster and more reliable;
- Offer ticketing solutions and fares which are cheaper for the user;
- Provide a more comprehensive network;
- Make the bus network easier to understand;
- Make the bus network easier to use; and
- Provide a network which is better integrated.

4.109 Again a well-designed and front-funded DRT service can meet each of these criteria.

Heavy & Light Rail Services – Stratford to Honeybourne Line

4.110 Land has been safeguarded between Stratford-upon-Avon and Honeybourne for a number of years to allow for the reopening of the Stratford-upon-Avon to Honeybourne railway line, which would provide a stop at LMA.

4.111 The reopening of the rail line with a heavy rail rolling stock, has the opportunity to capture both local, regional, and national journeys. Based on Mobility Network Data distribution data around a quarter of AM home-based journeys to work travelled within the Stratford-upon-Avon model area (modelled in 2017), however it is becoming increasingly clear that leisure trips form as important if not more or a role in rail use, and so this should be taken into account. Frequent short rail journeys have the potential to capture a large proportion of these trips travelling north, and a large proportion of trips travelling onwards to Oxford, London and Birmingham. Stratford-upon-Avon railway station can be utilised for services to destinations including Birmingham and Leamington Spa, and Honeybourne offers direct connections to London Paddington and Worcester Foregate Street. Additionally reinstation of this line would fill in a missing link for the wider rail network (if heavy rail rolling stock is accommodated) thus providing for through-journeys rather than just those beginning and ending at LMA.

4.112 Presently a single track line is in place between the Rail Innovation Centre and Honeybourne, but operates as a freight line only, however the disused line between LMA and Stratford-upon-Avon has been converted in to the popular Stratford Greenway which has already been discussed in detail.

4.113 The reintroduction of the rail line between Stratford and Honeybourne will require 14.5km of new or upgraded lines to be provided between Stratford-upon-Avon and Honeybourne, including through built-up Stratford-upon-Avon between the Severn Meadows roundabout and the station.

4.114 A study was undertaken by ARUP in 2012 to determine the business case for this proposal - Stratford to Honeybourne Reinstatement Business Case (ARUP, 2012). The high-level findings and how this impacts the overall Vision for LMA is contained in the following.

4.115 The Greenway active travel corridor is located on land which would be required for the railway line, and therefore the Greenway cycle route would need to be realigned along with any other recommended improvements as suggested earlier in this document. To the north of the Greenway the local highway network acts as an obstacle for a reinstated railway line, and the preferred option at this location was reported to be a grade separated dive-under structure to the south of Stratford rail station alongside a realigned Seven Meadows Road (ARUP, 2012). The route to Honeybourne would be simpler as it would only require the upgrade of existing freight lines. There are additional constraints in the form of crossing the River Avon, and crossings at Milcote Road and Station Road where ARUP reported are unlikely to be accepted as level-crossings.

4.116 The ARUP report suggests that reopening of the Stratford-upon-Avon to Honeybourne link would allow for direct routes to Worcester, Oxford and Leamington Spa from LMA and services to these locations would be hourly in both directions. It has been determined that the annual increase in rail passengers as a result of the reopening of the rail line would be between approximately 245,000 and 255,000 (by 2012 standards) – it should be noted that these would not all be generated by LMA but would come from further afield. Indeed, ARUP reported that approximately 30,000 trips would result directly from LMA for 500 homes, equating to around 100 daily trips. Factoring this up to 3,500 homes would equate to approximately 700 trips daily (although this does not account for homes that are further away from the station or other uses on site).

4.117 Based on the Mobility Network Data distribution for journeys to work, which suggests that a quarter of AM journeys to work from the area surrounding LMA would be made within the Stratford-upon-

Avon model area, it is expected that the reopening of the railway line would access opportunities by public transport for a good number of trips generated by LMA, however this only accounts for trips for work. A rail journey towards Stratford-upon-Avon from LMA is likely to be a shorter and more consistent journey time when compared to traditional on-road travel. The likely impact reinstation of the railway line would have on the trip generation for LMA will be investigated further in Part 2 of this study, and in particular how it relates to reduction in vehicle trips.

4.118 The masterplan for Phase 1 of LMA accommodates a transport hub located within the southwestern corner of the site and this has been discussed already in the context of Mobility Hubs. Should the rail line be reopened between Stratford-upon-Avon and Honeybourne, the LMA railway station could be suitably located within this hub.

4.119 Whilst it is acknowledged that the reinstation of this railway line would be a considerable benefit to LMA and the wider rail network, viability of the scheme is a concern. The ARUP report prepared in 2012 estimated a high-level cost for the reinstatement to be £96.9m. This cost is now 10 years old and accounting for inflation will be substantially more now. The benefit to LMA will be determined in the context of trip generation as part of Part 2 of this study, and this will be analysed against the cost and viability of the scheme along with other disbenefits the scheme would bring such as hindering the Greenway environment. Funding of such a scheme is unlikely to be practical from LMA developer(s) based on the level of benefit it would afford to LMA itself and therefore another source of funding would be required.

4.120 In January 2020 the Government announced its ‘Restoring your Railway programme’ and invited appropriate groups to propose how they could use funding to reinstate local services and stations. Part of this included an Ideas Fund, intended to provide development funding for early stage ideas for appropriate restoration. A bid for the Stratford-Honeybourne-Worcester/Oxford (SWO) line was submitted to this fund.

4.121 A second round Bid was submitted to the DfT on 19th June 2020 and on 25th November 2020 the DfT announced that the SWO bid had been successful for inclusion in the National Infrastructure Strategy. As such, the Government committed to provide up to £50,000 or 75% of the costs of producing a Strategic Outline Business Case (SOBC) for restoring this link.

4.122 The SOBC was undertaken by Stantec in 2021 on the Stratford-Honeybourne-Worcester/Oxford (SWO) Railway Investment. The reinstatement was widely supported across this region, and the study was submitted to DfT in June 2021 with a response now awaited on progressing to an Outline Business Case (OBC).

4.123 Light or very light rail is a potential alternative to heavy rail, and could join the road network within Stratford-upon-Avon as a tram system. Concerns have been raised during Stakeholder discussions as to the relative cost of this service against heavy rail, as existing rolling stock cannot be utilised. This potential option is hence considered at a high level in Part 2 of this study, but not included in the initial Vision.

4.124 Through Stakeholder discussions it is evident that support for the reinstatement of this railway line is mixed, with some parties concerned over the viability and the impact on the current and potential other uses for the Greenway. Ultimately whether this forms part of the Vision for LMA will be

determined by how effective the link will be on trip generation against the business case, which itself with also be informed by the protracted timescales of re-opening the railway line. This would require the support of Network Rail and is a timely process.

4.125 The Vision for LMA therefore excludes the reinstatement of this line at least in the medium time frame, and it is suggested that the whole package of measures put forth in this document contribute to a thriving and connected new settlement with the exclusion of this rail link. This includes delivering several alternative measures along the Greenway to maximise its potential in other ways. Certainly it would offer a benefit to the scheme and to the wider area in terms of connectivity and economic considerations, and if investigation as part of the Part 2 study determines the reinstated rail link to be a greater advantage to the scheme than already set out then the Vision will be updated.

4.126 Whilst the Core Strategy safeguards land for potential rail reinstatement should the case for re-opening be made, the Core Strategy does not require the reopening of the railway to deliver LMA garden village.

Rail Services – LMA to Honeybourne Line

4.127 As set out above, a single track remains between LMA and Honeybourne and is currently restricted to freight use only. As such the potential of reopening the LMA to Honeybourne railway line has been identified. The link at present is only used infrequently for freight trains, and an upgrade to the line would be required to accommodate passenger trains.

4.128 The reopening of this line would allow for journeys to be made from LMA to destinations including Worcester, Evesham and Oxford. The demand for these locations from LMA (including Meon Vale and surrounding villages) will be established in more detail in Part 2 of this study, however the 2011 Census journey to work data suggests that only a small proportion of future residents are likely to route to these locations for work. This raises a question about cost vs benefit.

4.129 ARUP produced a study in 2018 identifying the feasibility of this option (Honeybourne to Long Marston Rail Shuttle Service), and determined that usage would be fairly low on this link alone, with around 100 two-way trips expected from LMA per day, equating to approximately 30,000 new trips by rail per year. It is reported within the ARUP report that a circular journey between LMA and Honeybourne would take in the region of 18-36 minutes depending on line speeds and also considering a turn-around time at LMA. Based on this, a maximum journey time of between 9-18 minutes can be expected each way between LMA and Honeybourne. By car using the existing road network this journey is estimated to take around 15 minutes (one-way). The time saving is not therefore significant and there is a risk that many residents would view the private car as more convenient albeit spaces are currently limited, itself a constraint for driving. As such, and as with other measures discussed in this document, it is crucial that any proposed rail shuttle service to Honeybourne is of the highest quality, reliable, connected via a MaaS platform/app, has WiFi etc, as well as being well-connected to people's homes and workplaces within LMA through excellent first and last-mile travel options. These micromobility solutions are discussed previously in this document.

4.130 In order to facilitate this rail shuttle service, upgrades to 5km of existing freight line is required, whilst an additional 2km of new rail line would also be required for connection to LMA. Additional infrastructure considerations include realigning the line around the industrial estate on Station Road,

and providing a grade separated crossing at Station Road (or agreeing a level crossing which is unlikely to be accepted). Investment at Honeybourne station would also be required as the line does not currently access a platform. Additional concerns were raised over the level of service currently offered at Honeybourne (1 train per hour in either direction) which hence impacts the level of demand expected from LMA and surrounding villages including Meon Vale. Furthermore, the cost estimate ARUP attributed to this potential proposal (in 2018) is £37.5m for capital costs, with between £200,000 to £418,000 per annum for rolling stock. ARUP concluded that this scheme is not 'good value for money'. As with the Stratford-upon-Avon to Honeybourne reinstatement, this cost is not likely to be covered by developer funding and alternative sources would be required.

4.131 Based on the conclusions within this report, a number of alternative options were identified by ARUP and will be analysed within Part 2 of this study. These include:

- Increased car parking at Honeybourne;
- Connection via a busway;
- Flexible minibus service;
- Tram Train;
- Additional or alternative stations;
- Improved walking and cycling links;
- Cascaded or lighter rail;
- Community based operation; and
- Extension to Stratford Racecourse.

4.132 The Vision for LMA addresses many of these options and Part 2 of this study will consider mass transit options including tram and light rail further. The Vision is for an integrated DRT service to operate between LMA and surrounding areas, of which Honeybourne will be covered. As such this covers and improves upon the suggested mini-bus service listed above, it also negates the need for additional parking spaces at Honeybourne as offers a workable alternative to the car. This may also release existing spaces for those for whom the car is more desirable such as disabled users.

Automated Shuttles

4.133 Automated shuttles bring the potential for truly transformative change in the way people (and goods) are transported, offering significant improvements in safety, efficiency, mobility, productivity, and user experience.

4.134 In April 2017 Business Secretary Greg Clark and Transport Minister John Hayes awarded £109.7 million of government, alongside significant funding from industry, to help develop the next

generation of driverless and low-carbon vehicles, as part of the Industrial Strategy and the government's Plan for Britain[14].

4.135 In the budget in November 2017 Philip Hammond reaffirmed a government pledge to ensure "genuine driverless vehicles" on Britain's roads by 2021[15]. On 6th March 2018 Roads Minister Jesse Norman announced the start of a 3-year review by the Law Commission of England and Wales and the Scottish Law Commission to examine any legal obstacles to the widespread introduction of self-driving vehicles and highlight the need for regulatory reforms[16].

4.136 On 9th September 2019 the government announced the opening of a new test facility for self-driving vehicles and a new safety regime 'CAV PASS', being pioneered in the UK[17].

4.137 As previously advised in this document, the Greenway offers an almost unique opportunity to service LMA with automated shuttles. This would provide a safe, direct, and comfortable environment for all users to quickly travel between the site and Stratford-upon-Avon. These could be operated solely on the Greenway and accessed via a Mobility Hub at the edge of the settlement, or through the site on a dedicated route from a central point of the settlement (or multiple points).

4.138 The shuttles can travel up to 20mph meaning they can connect LMA with the Severn Meadows roundabout in under 15 minutes. The technology for automated shuttles is rapidly advancing and within the next few years the pods will be able to integrate with road traffic. This means that the Vision for LMA supports a fully connected automated shuttle route from the site to Stratford-upon-Avon (exact destination/destinations to be determined as appropriate).

4.139 The shuttles would need to be stored at a suitable destination/pick-up point such as Stratford-upon-Avon station for return journeys. The pods would be booked and paid for primarily through an app (or alternative such as by telephone), meaning that they can be balanced appropriately for demand.

4.140 The viability and expected cost of this scheme will be investigated at a high level in Part 2 of this study.

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[14] https://www.gov.uk/government/news/over-109-million-of-funding-for-driverless-and-low-carbon-projects

[15] https://www.theguardian.com/world/2017/nov/23/philip-hammond-pledges-driverless-cars-by-2021-and-warns-people-to-retrain

[16] https://www.gov.uk/government/news/government-to-review-driving-laws-in-preparation-for-self-driving-vehicles

[17] https://www.gov.uk/government/news/new-system-to-ensure-safety-of-self-driving-vehicles-ahead-of-their-sale

Case Studies

4.141 In 2018 Innovate UK announced the award of £2.5 million to trial connected automated vehicles (CAV) at Milton Park, a large employment site near Didcot[18]. The vehicles are expected to be operational in 2022, and whilst initially operating within Milton Park, the intention is for vehicles to operate between Milton Park and Didcot Parkway rail station, providing improved choice for employees when making their daily travel decisions. The trial will last for 30 months.

4.142 The aim after 30 months is that up to 50% of private vehicle journeys within the business park will switch to using the shared, electric pods.

4.143 A trial of electric automated shuttles began at Harwell Campus in November 2021, piloted by Darwin Innovation Group with support from the European Space Agency and UK Space Agency. The shuttle transports users around Harwell Science and Innovation Campus on-road.

4.144 An automated shuttle scheme is now operational in Paris, piloted by Transdev and Renault in partnership with the Paris-Saclay Public Establishment, the Paris Saclay Urban Community and Ile-de-France Mobility. Currently the scheme is running at the Paris-Saclay urban campus and will further the work done under the Autonomous Lab project. Three new autonomous and electric mobility services are being trialled on shared and peri-urban territory including:

- Autonomous shuttle on dedicated BRT line (shared with Public Transport) in addition to the High Service Level Buses (BHNS), for a night service, from and to the Massy RER station;
- Autonomous shuttles for an on-demand feeder system, to bus services in a longer perspective;
- On-demand, electric, autonomous and shared cars such as private public transport (shared VTC type) accessible via a smartphone application. The proposed meeting points serve the Saclay campuses over 5km[19].

4.145 A small fleet of 10-seater electric autonomous shuttles are to be trialled on West Cambridge Campus soon, with the intention of rolling out an integrated transport network of shuttles across the city. The shuttles will run on the public highway between the Madingley Park & Ride site to the West Cambridge site to the University Institute of Astonomy and back. This is 3km long.

[18] http://www.vectos.co.uk/news-story/vectos-project-receives-government-green-light-first-use-autonomous-vehicles-uk-roads

[19] https://www.transdev.com/en/our-solutions/autonomous-transport/

The scheme is funded by Innovate UK in collaboration with the Greater Cambridge Partnership (GCP) and Aurrigo (developers of the shuttles).

Journey Planning App/Mobility As A Service

4.146 Mobility as a service (MaaS) is at the forefront of change, and is a concept combining services from public and private transport providers in one place, allowing users to create, manage, and pay for trips from a single account. This is typically in the form of an app.

4.147 MaaS combines each of the measures set out in the Vision for LMA, some of which are already equipped to be managed through this type of platform.

4.148 Crucially, one single initiative will not deliver mobility and facilitate sustainable accessibility, but the combination of these services and the collection of access to each in a single location (or app) provides the choice in travel people desire.

4.149 Other authorities in the UK are a member of the 'MaaS Alliance' which is "a public-private partnership working to establish the foundations for building a common approach to MaaS and unlocking the economies of scale needed to support the successful implementation and uptake of MaaS globally"[20].

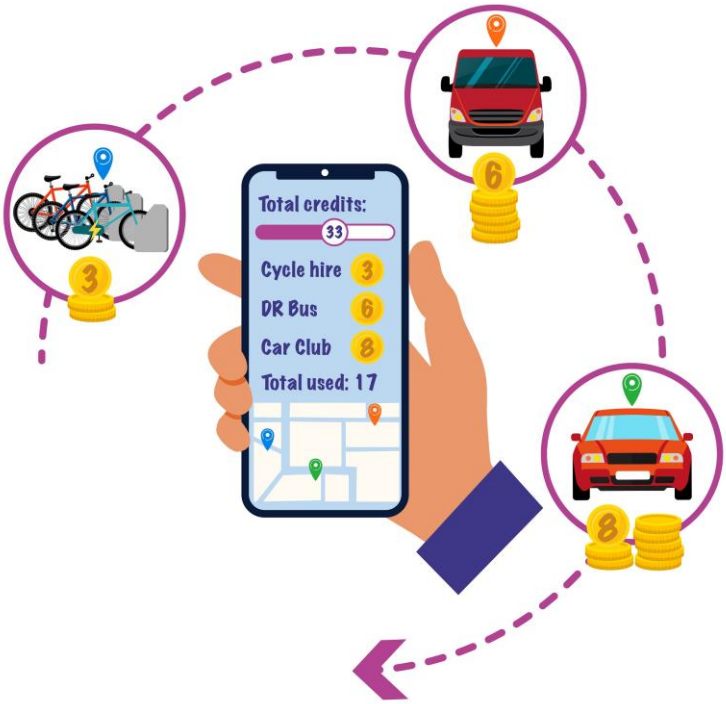
Case Studies

4.150 A comprehensive MaaS system is in operation in the West Midlands. A real-time, personalised model is delivered through the app 'Whim', which combines bus, metro, taxi, city bike, rental car and coach services into one platform. It allows the option to either choose an all-inclusive periodic plan or to pay per journey. This was initially launched in 2017 and is now available to the general public. As of July 2018, over 1 million trips had been provided to the community.

4.151 A further example of how MaaS could work is provided below. In a practical sense MaaS already occurs with users for example purchasing rail tickets on their smartphone app and then using a taxi app to complete the 'last mile' portion of their journey.

[20] https://maas-alliance.eu/the-alliance/#members-and-partners

Figure 4.6 - MaaS Example



Smart Card was raised during Stakeholder discussions as being an example of a successful electronic ticket that can be used on multiple bus services (non-company specific). At the moment many bus companies in the UK are accepting the Smart Card and this is a good example of integrated ticketing in line with MaaS.

5 The Vision

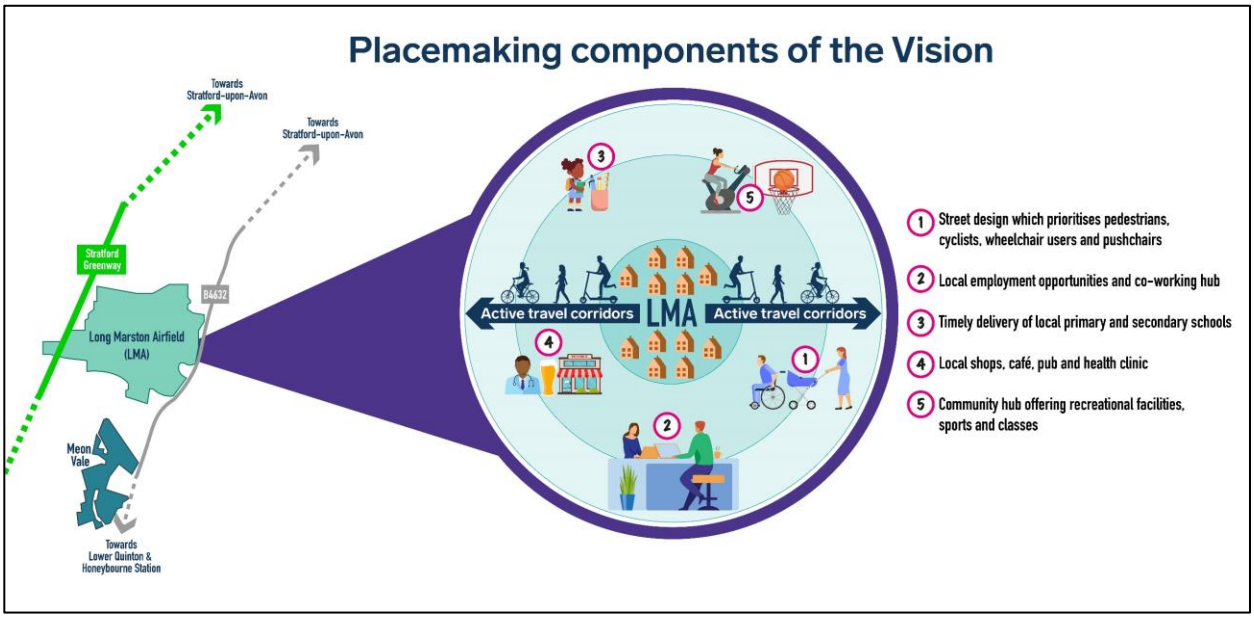
5.1 This Vision for Long Marston Airfield Garden Village (LMA) sets out an ambitious package of interconnected placemaking and mobility components to foster a thriving local community which is centred around accessibility, liveability and minimising carbon emissions.

The Vision – Placemaking

5.2 The Placemaking components of the Vision offer residents the freedom to fulfil the majority of daily activities within their community either physically or remotely. This will be made possible through an integrated package of accessibility measures and amenities that enable local living with a thriving community and economy. Onsite services would be selected taking into account those which exist or are planned in neighbouring communities, including Meon Vale and Lower Quinton, for a joined up approach and to maximise financial sustainability. The result will be resilient neighbourhoods designed to support net zero carbon objectives. The placemaking components of the Vision are:

- 15 minute neighbourhood planning principles;
- street design which prioritises pedestrians, cyclists, wheelchair users and pushchairs;
- local employment opportunities;
- enabling ‘third place’ working through a co-working hub;
- new ideas for timely delivery of local primary and secondary schools;
- provision of local shops, café, pub and health clinic; and
- the community hub offering recreational facilities, sports and classes.

Figure 5.1 - Placemaking components of the vision

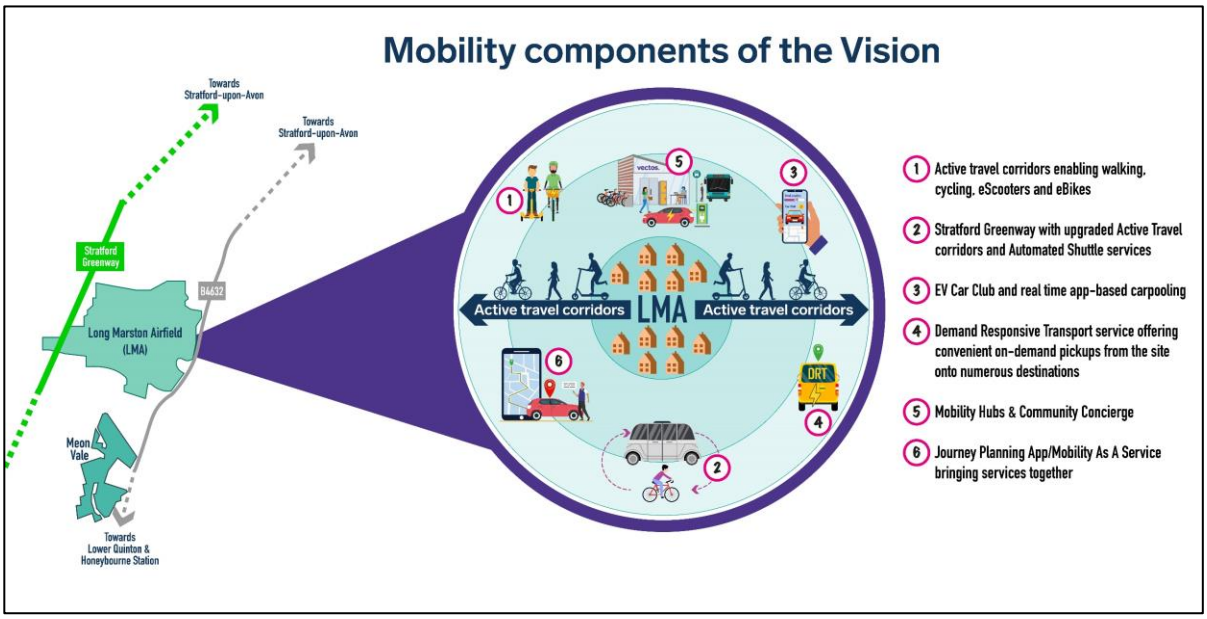


The Vision – Mobility

5.3 The Mobility components of the Vision offer an attractive range of shared, low carbon options for residents, workers, and visitors that will make sustainable mobility behaviour the natural first choice for the majority of journey types. Mobility components are:

- Active travel corridors making walking, cycling, eScooters and eBikes the preferred way to get around LMA and to connect to onward destinations including Meon Vale, Lower Quinton, Long Marston and Stratford-upon-Avon etc.;
- Unlocking the potential of the Stratford Greenway with upgraded Active Travel corridors and Automated Shuttle services and links to Stratford and Meon Vale and nearby leisure activities;
- Thriving EV Car Club and real time app-based carpooling;
- Demand Responsive Transport service offering convenient on-demand pickups from the site onto numerous destinations;
- Shared Micro Mobility services (Bike, E-bike, E-scooter, E-cargo);
- Mobility Hubs & Community Concierge; and
- Journey Planning App/Mobility As A Service bringing these services together

Figure 5.2 - Mobility components of the vision



5.4 The Vision takes into account long term trends seen in changing mobility behaviour as well as those precipitated by the recent pandemic. It challenges traditional assumptions on travel choice by employing the Vision and Validate approach to transport planning. Namely that a Vision-led approach

can achieve the desired mobility behaviour by providing modern and convenient alternatives, design streets that encourage active travel and provide the services which promote local living and tackle isolation. This in turn can mitigate the impact on local highway infrastructure from the delivery of new residential developments.

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